

A First Look at the 2021 Postsecondary Enrollment, Completion, and Financial Aid Outcomes of Fall 2009 Ninth-Graders

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High School Longitudinal Study of 2009 (HSLs:09)

A First Look at the 2021 Postsecondary Enrollment,
Completion, and Financial Aid Outcomes of Fall
2009 Ninth-Graders

April 2024

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Introduction

This First Look report presents selected findings from the Postsecondary Education Administrative Records Collection (PEAR) of the High School Longitudinal Study of 2009 (HSLs:09). HSLs:09 follows a nationally representative sample of students who were in ninth grade in fall 2009 from high school into postsecondary education and the workforce. Key research topics for HSLs:09 include secondary-to-postsecondary transition plans and the evolution of those plans; paths into and out of science, technology, engineering, and mathematics (STEM) studies and careers; and the relationship between students' educational and social experiences in high school and their plans for and experiences in postsecondary education, work, and life.

The National Center for Education Statistics (NCES) fielded the HSLs:09 base-year data collection in 2009, with a first follow-up in 2012, an update and a high school transcript collection in 2013, and a second follow-up in 2016. During 2017 and 2018, transcripts and financial aid records were collected from students' postsecondary institutions as part of the Postsecondary Education Transcript and Student Financial Aid Records Collection (PETS-SR). The PEAR data collection, conducted in 2021, linked the information that students provided in HSLs:09 to their information in the Central Processing System (CPS) and the National Student Loan Data System (NSLDS) at the U.S. Department of Education (also known as "matching" between HSLs:09 and the external databases). Students were also matched to the National Student Clearinghouse (NSC). These three administrative databases compile information on students' postsecondary enrollment, completions, and financial aid. CPS contains information provided when students and families complete the Free Application for Federal Student Aid (FAFSA). NSLDS includes enrollment data as reported by institutions to the U.S. Department of Education's Federal Student Aid office, as well as each individual's complete Title IV grant and federal loan history. NSC is a nonprofit organization that collects information from postsecondary institutions on the attendance, enrollment dates, and degree completion of their students.

PEAR data cover all postsecondary enrollments and completions reported in NSC and NSLDS through June 30, 2021, approximately 8 years after high school graduation for most of the HSLs:09 cohort. This period was chosen because a bachelor's degree is designed to be completed in 4 years, but many students take up to 8 years or longer to complete one.¹ The Integrated Postsecondary Education Data System (IPEDS) reports graduation rates for the number of students completing their program within a time period equal to two times (200%) the expected duration of a bachelor's degree program, which they call Graduation Rates 200% (GR200).² Overall, the PEAR data provide a picture of students' enrollment history and degree completion outcomes in postsecondary education, as well as their financial aid status over approximately 8 years.

The estimates in this report pertain to students from the HSLs:09 cohort who had ever enrolled in postsecondary education as of June 30, 2021.³ In all, 74 percent of students in the HSLs:09 cohort had ever enrolled in postsecondary education by June 30, 2021, and 26 percent had no known evidence of

¹ Of the 2013 cohort of students who started as full-time, first-time bachelor's or equivalent degree-seeking students attending 4-year institutions, 45 percent completed their degree in 4 years, 64 percent completed their degree in 6 years, and 65 percent completed their degree in 8 years (U.S. Department of Education 2022).

² For more information on the Graduation Rate 200 metric, see IPEDS at <https://nces.ed.gov/ipeds/survey-components/10>.

³ For more information about how enrollment in postsecondary education was determined, please see section 3.1 of the *High School Longitudinal Study of 2009 (HSLs:09) Postsecondary Education Administrative Records Collection Data File Documentation* (Rogers et al. forthcoming).

postsecondary education enrollment.⁴ Those who enrolled in postsecondary education include students with a diverse set of characteristics. For example, 54 percent were women, 45 percent were men, and 1 percent identified as another gender. Table A-1 shows the full distribution of selected student and school characteristics for cohort members who had enrolled in postsecondary education as of June 30, 2021.

The time frame covered by the PEAR data collection includes the coronavirus pandemic, which began in early 2020. Postsecondary enrollments were 4.9 percent lower in the fall 2021 semester, after the pandemic began, than in the fall 2019 semester, before the pandemic (National Center for Education Statistics 2022). In the spring 2020 semester, many students experienced enrollment, housing, and financial disruptions and changes, including classes being moved from in-person to online, moving back to permanent addresses, and losing income from reduced work hours (Cameron et al. 2021). Additionally, the Coronavirus Aid, Relief, and Economic Security (CARES) Act provided money to postsecondary institutions to distribute emergency aid to students. As a result of these changes, for HSLs:09 cohort members who were still enrolled in postsecondary education during this period, the pandemic likely impacted their experiences with financial aid receipt, transfers, decisions to enroll in different programs, and completion in ways that differ from prior cohorts and from HSLs:09 cohort members whose enrollment in postsecondary education ended before the pandemic.⁵

This First Look report provides a snapshot of the postsecondary education journey of students in the HSLs:09 cohort who had ever enrolled in postsecondary education as of June 30, 2021. The report's Selected Findings highlight three different aspects of the cohort's postsecondary education experience: postsecondary enrollment and completion outcomes, postsecondary education pathways, and financial aid receipt.

Tables A-2 and A-3 present information on degrees or certificates earned. Tables A-4 through A-6 report on students' pathways through postsecondary education among students who ever enrolled in a postsecondary credential or degree program. These tables examine persistence (i.e., remaining enrolled in postsecondary education if the student had not earned a credential); the timing of first enrollment; and transfers and stopouts (i.e., the periods of time when students are not enrolled in postsecondary education that occur between periods of enrollment).⁶ Table A-7 describes this cohort's experiences with enrolling in graduate degree programs and earning a graduate degree. Table A-8 provides data on certain types and amounts of financial aid received for undergraduate education. The Selected Findings and results reported in the tables represent just some of many estimates that can be obtained from the data.

Readers should not draw causal inferences based on the results in this report. Although many of the characteristics examined may be related to one another, the analysis did not examine the complexities of these relationships. Additionally, the variables included in this report are just a few of the 4,100 variables that are available in the PEAR data and the full HSLs:09 study. Appendix A includes the estimate and standard error tables, from which the Selected Findings are drawn. Appendix B describes how the study was designed and conducted and includes the references section for this report. Appendix C defines the variables used to produce the estimates in each table.

⁴ Students were considered to have no known evidence of postsecondary enrollment if they (1) indicated they had never enrolled in postsecondary education in the second follow-up survey and had no subsequent evidence of postsecondary enrollment in the administrative collections (PETS-SR or PEAR), or (2) had no evidence of postsecondary enrollment in the second follow-up survey and the administrative collections.

⁵ Eighty-six percent of the fall 2009 ninth-graders who enrolled in postsecondary education after high school by June 30, 2021, began by the 2013–14 academic year (i.e., their first known postsecondary attendance after high school attendance occurred by June 30, 2014).

⁶ Transferring and stopping out are not mutually exclusive experiences.

All comparisons referred to in the Selected Findings were tested for statistical significance, and all differences reported are statistically significant at the $p < .05$ level. However, adjustments were not made for multiple comparisons. Additional information about the study can be found online at <https://nces.ed.gov/surveys/hsls09/>.

Selected Findings

The findings below present selected information about the postsecondary education completion outcomes, postsecondary education pathways, and federal financial aid receipt for fall 2009 ninth-graders in HSLS:09 who had ever enrolled in postsecondary education by June 30, 2021.

Postsecondary education enrollment and completion outcomes for students who had ever enrolled in postsecondary education

- About two-fifths of students who had ever enrolled in postsecondary education (40 percent) had not completed a postsecondary degree or certificate by June 30, 2021 (table A-2). Some 8 percent had earned a postsecondary certificate or diploma as their highest credential, 10 percent had earned an associate's degree as their highest credential, 35 percent had earned a bachelor's degree as their highest credential, and 7 percent had earned a graduate degree as their highest credential.
- Among fall 2009 ninth-graders who had completed a postsecondary degree or certificate by June 30, 2021, about four-fifths (81 percent) completed their highest degree in a field other than science, technology, engineering, or mathematics (i.e., in a non-STEM field) (table A-3). A greater percentage of students who scored in the lowest fifth of the 11th-grade mathematics assessment completed their highest degree in a non-STEM field (93 percent), compared to students who scored in the highest fifth of mathematics achievement (66 percent).
- By June 30, 2021, a higher percentage of students whose parents had a bachelor's degree or higher enrolled in graduate programs (21 percent) compared to students whose parents had a high school credential or lower (7 percent) and students whose parents had a postsecondary certificate or associate's degree (9 percent) (table A-7).

Postsecondary education pathways for students who ever enrolled in a postsecondary credential or degree program

- Nearly a third of students who ever enrolled in a postsecondary credential or degree program (30 percent) had not earned a postsecondary credential and were no longer enrolled by June 30, 2021 (table A-4). Another 4 percent had not earned a credential and were enrolled in a less-than-4-year institution, and 3 percent had not earned a credential and were enrolled in a 4-year institution. The remaining 62 percent had attained a credential.
- A greater percentage of students whose family income in 2011 exceeded \$115,000 had earned a postsecondary credential by June 30, 2021 (78 percent), compared to students at lower family income levels (49 to 70 percent) (table A-4).
- Among students who had not earned a postsecondary credential by June 30, 2021, 17 percent participated in dual enrollment (i.e., enrollment in courses to earn college credit while still in high school) (table A-5). This was smaller than the percentage of those who participated in dual enrollment among students who had earned a postsecondary credential (33 percent).
- A smaller percentage of students (5 percent) who earned a postsecondary credential by June 30, 2021, delayed first entry into postsecondary education by more than 12 months after high school graduation, compared to students who did not earn a postsecondary credential (23 percent) (table A-5).

- A greater percentage of students (52 percent) who did not attain a postsecondary credential by June 30, 2021, experienced at least one stopout greater than 4 months, compared to the percentage of students who did attain a postsecondary credential (39 percent) (table A-6).

Federal financial aid receipt for students who had ever enrolled in postsecondary education

- The percentage who received a Pell Grant was greater than the percentage who received a federal loan for Asian (67 vs. 49 percent), Black (85 vs. 73 percent), and Hispanic (74 vs. 53 percent) students (table A-8). In contrast, among White students, the percentage who received a loan (61 percent) was greater than the percentage who received a Pell Grant (48 percent).
- Among students who received federal student loans for undergraduate education, the average cumulative amount received was \$17,900, which exceeded the average cumulative amount of grants received by Pell Grant recipients (\$10,800) (table A-8). This pattern held true for all race and ethnicity groups, except Native Hawaiian or Pacific Islander students, for whom there was no statistically significant difference between the two amounts.

Appendix A— Estimate and Standard Error Tables

Table A-1. CHARACTERISTICS OF COHORT MEMBERS WHO EVER ENROLLED IN POSTSECONDARY EDUCATION: Percentage distribution of fall 2009 ninth-graders who ever enrolled in postsecondary education, by selected student and school characteristics: June 2021

Selected student and school characteristics	Fall 2009 ninth-graders who ever enrolled in postsecondary education
Total	100.0
Gender ¹	
Female	53.9
Male	44.6
Another gender	1.4
Race/ethnicity ²	
American Indian or Alaska Native	0.6!
Asian	4.2
Black	12.9
Hispanic	20.8
Native Hawaiian or other Pacific Islander	0.5
White	53.2
Two or more races	7.8
Highest education attained by either parent	
High school credential or lower ³	36.1
Certificate or associate's degree ⁴	22.1
Bachelor's degree or higher ⁵	41.8
Family income in 2011	
\$35,000 or less	28.3
\$35,001 to \$55,000	17.2
\$55,001 to \$75,000	14.8
\$75,001 to \$115,000	20.2
\$115,001 and higher	19.5
Mathematics achievement quintile in 11th grade ⁶	
Lowest fifth	13.6
Middle three-fifths	60.4
Highest fifth	26.0
Cumulative high school grade point average ⁷	
Lower than 2.50	30.1
2.50–2.99	23.5
3.0–3.49	25.4
3.50 or higher	21.0
School locale in 11th grade ⁸	
City	31.2
Suburb	29.2
Town	11.4
Rural	28.2
School control in 11th grade ⁸	
Public	91.6
Catholic or other private	8.4

! Interpret data with caution. Estimate is unstable because the standard error is between 30 and 50 percent of the estimate.

¹ Participants could select multiple gender identities. "Female" includes students who only selected female, and "male" includes students who only selected male. "Another gender" includes students who selected multiple gender identities and/or students who selected "transgender, male-to-female;" "transgender, female-to-male;" "genderqueer or gender nonconforming, or some other gender;" or not sure.

² Black includes African American; Hispanic includes Latino; and Two or more races includes persons having origins in more than one race. Race categories exclude persons of Hispanic ethnicity.

³ High school credential includes high school diploma, GED certificate, certificate of attendance or completion, or other high school equivalency credential.

⁴ Certificate or associate's degree includes certificates/diplomas from schools providing occupational training or associate's degree programs.

⁵ Bachelor's degree or higher includes bachelor's degrees, master's degrees, Ph.D.'s, MDs, law degrees (i.e., JDs), and other higher level professional degrees.

⁶ The mathematics assessment was designed to provide a measure of student achievement in algebraic reasoning. The test framework covers a representative cross-section of the major domains and key processes of algebra. For more information on the design of the assessment, see chapter 2 of the *High School Longitudinal Study of 2009 (HSL:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013). Estimates include students who, at the HSL:09 first follow-up, were in school in grade 11, as well as those who were in school but not in grade 11, early graduates, and students who had left school.

⁷ Students for whom cumulative high school GPA was equal to zero are not included.

⁸ Estimates exclude students who were not in school as of the HSL:09 first follow-up and include in-school students who were in a grade other than 11 at the time of the first follow-up. NOTE: "Ever enrolled in postsecondary education" refers to ever enrolling in a postsecondary course or a postsecondary certificate or degree program. Estimates in this table pertain to fall 2009 ninth-graders who ever enrolled in postsecondary education by June 30, 2021, and are weighted using W6PEAR. Detail may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSL:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table A-2. CREDENTIALS EARNED: Among fall 2009 ninth-graders who ever enrolled in postsecondary education, percentage distribution of highest degree attained, by selected student and school characteristics: June 2021

Selected student and school characteristics	No postsecondary credential ¹	Post-secondary certificate or diploma ²	Associate's degree	Bachelor's degree ³	Graduate degree
Total	39.6	7.9	9.9	35.4	7.2
Gender ⁴					
Female	32.7	7.7	10.1	39.2	10.3
Male	39.8	6.5	9.4	38.2	6.0
Another gender	46.5	4.3!	9.2	34.6	5.5!
Race/ethnicity ⁵					
American Indian or Alaska Native	55.5!	‡	10.2!	‡	‡
Asian	25.4	2.3	5.6	56.0	10.7
Black	56.5	8.3	6.0	24.9	4.3
Hispanic	46.2	11.6	11.9	26.3	4.1
Native Hawaiian or other Pacific Islander	58.7	‡	‡	29.8!	‡
White	32.4	6.9	10.3	41.4	9.0
Two or more races	49.1	7.8	10.6	26.0	6.4
Highest education attained by either parent					
High school credential or lower ⁶	49.2	11.1	11.3	24.7	3.7
Certificate or associate's degree ⁷	45.2	8.4	12.2	29.7	4.5
Bachelor's degree or higher ⁸	25.8	4.7	7.6	49.8	12.1
Family income in 2011					
\$35,000 or less	52.4	10.3	11.1	22.9	3.4
\$35,001 to \$55,000	41.8	9.7	12.6	30.4	5.6
\$55,001 to \$75,000	37.3	8.0	11.0	38.2	5.5
\$75,001 to \$115,000	31.4	6.2	9.3	41.3	11.8
\$115,001 and higher	23.9	4.2	5.7	54.5	11.7
Mathematics achievement quintile in 11th grade ⁹					
Lowest fifth	60.8	14.4	10.3	13.5	1.1!
Middle three-fifths	41.6	8.5	11.6	32.5	5.8
Highest fifth	19.9	2.5	5.5	57.6	14.6
Cumulative high school grade point average ¹⁰					
Lower than 2.50	66.5	13.6	8.3	11.3	0.3!
2.50–2.99	44.1	9.6	13.3	29.4	3.6
3.0–3.49	25.0	5.6	12.1	49.0	8.3
3.50 or higher	10.7	1.3	5.9	62.1	20.1
School locale in 11th grade ¹¹					
City	39.7	7.6	7.8	37.7	7.2
Suburb	34.5	7.1	8.6	41.4	8.4
Town	39.3	7.5	13.9	32.7	6.6
Rural	37.3	8.2	12.4	34.6	7.5
School control in 11th grade ¹¹					
Public	39.1	8.1	10.5	35.5	6.8
Catholic or other private	19.3	2.5!	5.2	57.4	15.7

! Interpret data with caution. Estimate is unstable because the standard error is between 30 and 50 percent of the estimate.

‡ Reporting standards not met either because the standard error is greater than 50 percent of the estimate or because there were too few cases for a reliable estimate.

¹ This category includes students who enrolled in a postsecondary certificate or degree program but did not complete a certificate or degree.

² "Postsecondary certificate or diploma" includes certificates and diplomas from schools providing occupational training.

³ Bachelor's degrees include post-bachelor's certificates.

⁴ Participants could select multiple gender identities. "Female" includes students who only selected female, and "male" includes students who only selected male. "Another gender" includes students who selected multiple gender identities and/or students who selected "transgender, male-to-female;" "transgender, female-to-male;" "genderqueer or gender nonconforming, or some other gender;" or not sure.

⁵ Black includes African American; Hispanic includes Latino; and Two or more races includes persons having origins in more than one race. Race categories exclude persons of Hispanic ethnicity.

⁶ High school credential includes high school diploma, GED certificate, certificate of attendance or completion, or other high school equivalency credential.

⁷ Certificate or associate's degree includes certificates/diplomas from schools providing occupational training or associate's degree programs.

⁸ Bachelor's degree or higher includes bachelor's degrees, master's degrees, Ph.D.'s, MDs, law degrees (i.e., JDs), and other higher level professional degrees.

⁹ The mathematics assessment was designed to provide a measure of student achievement in algebraic reasoning. The test framework covers a representative cross-section of the major domains and key processes of algebra. For more information on the design of the assessment, see chapter 2 of the *High School Longitudinal Study of 2009 (HSL:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013). Estimates include students who, at the HSL:09 first follow-up, were in school in grade 11, as well as those who were in school but not in grade 11, early graduates, and students who had left school.

¹⁰ Students for whom cumulative high school GPA was equal to zero are not included.

¹¹ Estimates exclude students who were not in school as of the HSL:09 first follow-up and include in-school students who were in a grade other than 11 at the time of the first follow-up.

NOTE: "Ever enrolled in postsecondary education" refers to ever enrolling in a postsecondary course or a postsecondary certificate or degree program. Estimates in this table pertain to fall 2009 ninth-graders who ever enrolled in postsecondary education by June 30, 2021, and are weighted using W6PEAR. Detail may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSL:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table A-3. STEM DEGREES EARNED: Among fall 2009 ninth-graders who had completed a postsecondary degree or certificate, percentage whose highest degree was in non-STEM and STEM fields, by selected student and school characteristics: June 2021

Selected student and school characteristics	STEM fields			
	Non-STEM field ¹	Computer and information sciences	Engineering and engineering technology	Biological and physical sciences, science technology, mathematics, and agricultural sciences
Total	81.0	3.1	6.8	9.1
Gender ²				
Female	86.3	1.5	2.7	9.5
Male	70.4	6.1	13.8	9.7
Another gender	81.0	7.8!	‡	9.3!
Race/ethnicity ³				
American Indian or Alaska Native	85.3	#	‡	‡
Asian	66.2	7.2	9.1	17.5
Black	89.5	2.1!	3.0!	5.4
Hispanic	84.6	2.5	6.0	6.9
Native Hawaiian or other Pacific Islander	65.4	‡	‡	‡
White	79.6	3.2	7.6	9.6
Two or more races	83.8	2.3!	5.3!	8.6
Highest education attained by either parent				
High school credential or lower ⁴	84.5	3.2	5.0	7.3
Certificate or associate's degree ⁵	84.0	2.5	4.1	9.4
Bachelor's degree or higher ⁶	77.3	3.5	9.0	10.2
Family income in 2011				
\$35,000 or less	83.2	3.2	5.4	8.3
\$35,001 to \$55,000	84.1	3.5	4.8	7.6
\$55,001 to \$75,000	80.2	3.6	6.0	10.2
\$75,001 to \$115,000	79.9	2.6	7.9	9.6
\$115,001 and higher	77.3	3.3	9.2	10.1
Mathematics achievement quintile in 11th grade ⁷				
Lowest fifth	92.7	1.8!	1.7!	3.9!
Middle three-fifths	87.5	2.3	3.7	6.5
Highest fifth	66.4	5.1	13.4	15.2
Cumulative high school grade point average ⁸				
Lower than 2.50	90.6	2.4	4.1	3.0
2.50–2.99	86.4	2.3	4.7	6.7
3.0–3.49	82.0	3.2	6.0	8.7
3.50 or higher	71.8	3.6	10.4	14.1
School locale in 11th grade ⁹				
City	80.3	3.0	7.2	9.5
Suburb	79.8	3.8	7.3	9.1
Town	81.4	2.1!	6.8	9.7
Rural	81.2	3.2	6.4	9.2

See notes at end of table.

Table A-3. STEM DEGREES EARNED: Among fall 2009 ninth-graders who had completed a postsecondary degree or certificate, percentage whose highest degree was in non-STEM and STEM fields, by selected student and school characteristics: June 2021—Continued

Selected student and school characteristics	Non-STEM field ¹	STEM fields		
		Computer and information sciences	Engineering and engineering technology	Biological and physical sciences, science technology, mathematics, and agricultural sciences
School control in 11th grade ⁹				
Public	80.5	3.2	7.1	9.2
Catholic or other private	80.8	3.0	6.4	9.8

Rounds to zero.

! Interpret data with caution. Estimate is unstable because the standard error is between 30 and 50 percent of the estimate.

‡ Reporting standards not met either because the standard error is greater than 50 percent of the estimate or because there were too few cases for a reliable estimate.

¹ Non-STEM fields include social sciences, humanities, health, business, education, general studies, and other non-STEM applied fields.

² Participants could select multiple gender identities. "Female" includes students who only selected female, and "male" includes students who only selected male. "Another gender" includes students who selected multiple gender identities and/or students who selected "transgender, male-to-female," "transgender, female-to-male," "genderqueer or gender nonconforming, or some other gender," or not sure.

³ Black includes African American; Hispanic includes Latino; and Two or more races includes persons having origins in more than one race. Race categories exclude persons of Hispanic ethnicity.

⁴ High school credential includes high school diploma, GED certificate, certificate of attendance or completion, or other high school equivalency credential.

⁵ Certificate or associate's degree includes certificates/diplomas from schools providing occupational training or associate's degree programs.

⁶ Bachelor's degree or higher includes bachelor's degrees, master's degrees, Ph.D.'s, MDs, law degrees (i.e., JDs), and other higher level professional degrees.

⁷ The mathematics assessment was designed to provide a measure of student achievement in algebraic reasoning. The test framework covers a representative cross-section of the major domains and key processes of algebra. For more information on the design of the assessment, see chapter 2 of the *High School Longitudinal Study of 2009 (HSL:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013). Estimates include students who, at the HSL:09 first follow-up, were in school in grade 11, as well as those who were in school but not in grade 11, early graduates, and students who had left school.

⁸ Students for whom cumulative high school GPA was equal to zero are not included.

⁹ Estimates exclude students who were not in school as of the HSL:09 first follow-up and include in-school students who were in a grade other than 11 at the time of the first follow-up.

NOTE: "STEM fields" include those in the fields of science, technology, engineering, and mathematics. Estimates in this table pertain to fall 2009 ninth-graders who ever enrolled in postsecondary education and attained a postsecondary credential by June 30, 2021, and are weighted using W6PEAR. Detail may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSL:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table A-4. PERSISTENCE AND ATTAINMENT: Among fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program, percentage who were no longer enrolled, who were enrolled at different levels of postsecondary institutions, and who attained a postsecondary credential, by selected student and school characteristics: June 2021

Selected student and school characteristics	No postsecondary attainment ¹			Attained a postsecondary credential ³
	Not enrolled ²	Enrolled at less-than-4-year institution ²	Enrolled at 4-year institution ²	
Total	30.1	4.4	3.4	62.1
Gender ⁴				
Female	23.8	4.6	3.1	68.5
Male	30.5	3.3	3.7	62.5
Another gender	34.5	‡	‡	57.8
Race/ethnicity ⁵				
American Indian or Alaska Native	41.9	‡	‡	47.8!
Asian	14.1	2.2!	7.1!	76.6
Black	41.0	9.9!	4.7	44.4
Hispanic	35.5	6.0	3.1	55.4
Native Hawaiian or other Pacific Islander	53.0	‡	#	42.3!
White	24.9	2.7	2.7	69.7
Two or more races	39.3	3.6	4.2	52.9
Highest education attained by either parent				
High school credential or lower ⁶	37.4	6.7	3.4	52.5
Certificate or associate's degree ⁷	36.4	3.6	3.6	56.4
Bachelor's degree or higher ⁸	18.7	2.1	3.1	76.0
Family income in 2011				
\$35,000 or less	39.3	6.9	4.4	49.4
\$35,001 to \$55,000	33.3	3.2	3.7	59.8
\$55,001 to \$75,000	28.6	3.4	3.2	64.8
\$75,001 to \$115,000	23.7	3.3	2.6	70.4
\$115,001 and higher	18.0	2.1	2.3	77.5
Mathematics achievement quintile in 11th grade ⁹				
Lowest fifth	47.9	7.8	3.2	41.1
Middle three-fifths	31.5	4.4	3.8	60.2
Highest fifth	15.2	1.4	2.3	81.1
Cumulative high school grade point average ¹⁰				
Lower than 2.50	50.3	9.7	4.6	35.3
2.50–2.99	33.5	3.8	4.8	57.9
3.0–3.49	19.9	1.5	2.5	76.2
3.50 or higher	8.3	0.6	1.2	89.8
School locale in 11th grade ¹¹				
City	28.8	5.4	3.8	61.9
Suburb	26.8	3.1	3.3	66.8
Town	30.5	2.6	3.6	63.2
Rural	29.6	3.1	2.7	64.6

See notes at end of table.

Table A-4. PERSISTENCE AND ATTAINMENT: Among fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program, percentage who were no longer enrolled, who were enrolled at different levels of postsecondary institutions, and who attained a postsecondary credential, by selected student and school characteristics: June 2021—Continued

Selected student and school characteristics	No postsecondary attainment ¹			Attained a postsecondary credential ³
	Not enrolled ²	Enrolled at less-than-4-year institution ²	Enrolled at 4-year institution ²	
School control in 11th grade ¹¹				
Public	29.9	4.0	3.4	62.6
Catholic or other private	14.8	1.1	2.3	81.8

Rounds to zero.

! Interpret data with caution. Estimate is unstable because the standard error is between 30 and 50 percent of the estimate.

‡ Reporting standards not met either because the standard error is greater than 50 percent of the estimate or because there were too few cases for a reliable estimate.

¹ This category includes students who enrolled in a postsecondary certificate or degree program but did not complete a certificate or degree.

² Enrollment for students who had not attained a postsecondary credential was determined based on whether the student was enrolled in a postsecondary institution at any point between February and June 2021.

³ Includes people who attained any postsecondary credential, including certificates, associate's degrees, bachelor's degrees, and/or graduate degrees.

⁴ Participants could select multiple gender identities. "Female" includes students who only selected female, and "male" includes students who only selected male. "Another gender" includes students who selected multiple gender identities and/or students who selected "transgender, male-to-female;" "transgender, female-to-male;" "genderqueer or gender nonconforming, or some other gender;" or not sure.

⁵ Black includes African American; Hispanic includes Latino; and Two or more races includes persons having origins in more than one race. Race categories exclude persons of Hispanic ethnicity.

⁶ High school credential includes high school diploma, GED certificate, certificate of attendance or completion, or other high school equivalency credential.

⁷ Certificate or associate's degree includes certificates/diplomas from schools providing occupational training or associate's degree programs.

⁸ Bachelor's degree or higher includes bachelor's degrees, master's degrees, Ph.D.'s, MDs, law degrees (i.e., JDs), and other higher level professional degrees.

⁹ The mathematics assessment was designed to provide a measure of student achievement in algebraic reasoning. The test framework covers a representative cross-section of the major domains and key processes of algebra. For more information on the design of the assessment, see chapter 2 of the *High School Longitudinal Study of 2009 (HSL:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013). Estimates include students who, at the HSL:09 first follow-up, were in school in grade 11, as well as those who were in school but not in grade 11, early graduates, and students who had left school.

¹⁰ Students for whom cumulative high school GPA was equal to zero are not included.

¹¹ Estimates exclude students who were not in school as of the HSL:09 first follow-up and include in-school students who were in a grade other than 11 at the time of the first follow-up.

NOTE: This table excludes students who only enrolled in postsecondary courses and did not enroll in a postsecondary credential or degree program. Estimates in this table pertain to fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program by June 30, 2021, and are weighted using W6PEAR. Detail may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSL:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table A-5. FIRST ENTRY INTO POSTSECONDARY EDUCATION: Among fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program, percentage who were ever dual enrolled and percentage with different timing of entry into postsecondary education after high school, by degree attainment status and selected student and school characteristics: June 2021

Selected student and school characteristics	No postsecondary attainment ¹				Attained a postsecondary credential ²			
	Ever dual enrolled ³	Timing of first postsecondary entry after leaving high school			Ever dual enrolled ³	Timing of first postsecondary entry after leaving high school		
		Within 3 months of leaving high school	4–12 months after leaving high school	More than 12 months after leaving high school		Within 3 months of leaving high school	4–12 months after leaving high school	More than 12 months after leaving high school
Total	17.3	48.0	11.7	23.0	32.6	55.1	7.0	5.3
Gender ⁴								
Female	15.6	45.8	12.4	26.2	35.4	53.8	6.4	4.4
Male	17.4	51.0	11.1	20.4	29.9	57.8	7.1	5.2
Another gender	28.1	35.3	‡	24.5!	28.3	52.5	7.6!	11.6!
Race/ethnicity ⁵								
American Indian or Alaska Native	‡	29.6!	31.4!	31.6!	25.1!	67.7	‡	‡
Asian	21.3	58.2	9.0!	11.5	30.3	58.7	9.4!	1.6!
Black	12.4	49.6	14.9	23.1	26.8	58.5	8.9	5.9
Hispanic	12.5	47.8	11.4	28.3	26.8	57.3	7.9	8.0
Native Hawaiian or other Pacific Islander	‡	57.9!	‡	‡	35.2!	55.9	‡	‡
White	22.7	46.4	9.8	21.1	35.5	54.0	6.2	4.4
Two or more races	15.6	50.7	12.2	21.5	33.7	50.4	7.1	8.8
Highest education attained by either parent								
High school credential or lower ⁶	15.9	44.4	13.6	26.0	28.6	53.9	8.1	9.4
Certificate or associate's degree ⁷	18.4	50.1	10.6	21.0	33.2	52.1	9.3	5.5
Bachelor's degree or higher ⁸	19.9	53.7	8.2	18.2	34.8	57.2	5.4	2.7
Family income in 2011								
\$35,000 or less	14.5	46.3	11.8	27.3	29.6	51.6	8.9	9.9
\$35,001 to \$55,000	16.1	48.3	13.0	22.6	34.5	51.3	9.4	4.9
\$55,001 to \$75,000	21.1	48.4	9.9	20.6	32.1	58.3	4.6	5.0
\$75,001 to \$115,000	23.2	47.6	11.4	17.8	36.0	54.4	5.6	4.0
\$115,001 and higher	18.7	56.7	8.7	15.9	31.2	59.9	6.4	2.5
Mathematics achievement quintile in 11th grade ⁹								
Lowest fifth	12.2	41.2	13.8	32.8	20.1	54.0	14.3	11.6
Middle three-fifths	17.3	50.2	11.3	21.2	31.7	55.5	6.7	6.0
Highest fifth	28.6	52.0	6.3	13.1	37.7	55.4	5.0	1.9
Cumulative high school grade point average ¹⁰								
Lower than 2.50	11.1	44.3	14.3	30.2	19.3	49.6	15.2	15.9
2.50–2.99	17.4	53.8	10.9	17.9	26.2	59.8	7.0	6.9
3.0–3.49	27.7	55.7	6.6	10.0	32.9	59.0	5.1	3.0
3.50 or higher	41.4	43.0	7.5!	8.1	44.6	50.1	4.3	1.0

See notes at end of table.

Table A-5. FIRST ENTRY INTO POSTSECONDARY EDUCATION: Among fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program, percentage who were ever dual enrolled and percentage with different timing of entry into postsecondary education after high school, by degree attainment status and selected student and school characteristics: June 2021—Continued

Selected student and school characteristics	No postsecondary attainment ¹				Attained a postsecondary credential ²			
	Ever dual enrolled ³	Timing of first postsecondary entry after leaving high school			Ever dual enrolled ³	Timing of first postsecondary entry after leaving high school		
		Within 3 months of leaving high school	4–12 months after leaving high school	More than 12 months after leaving high school		Within 3 months of leaving high school	4–12 months after leaving high school	More than 12 months after leaving high school
School locale in 11th grade ¹¹								
City	15.2	54.7	9.9	20.3	28.8	59.2	7.3	4.7
Suburb	13.9	53.1	10.9	22.0	26.4	62.2	6.9	4.4
Town	22.7	42.2	10.5	24.6	43.3	46.5	5.8	4.4
Rural	23.0	46.8	11.2	19.0	39.9	49.1	6.1	4.9
School control in 11th grade ¹¹								
Public	18.1	49.8	10.6	21.4	34.1	54.3	6.6	5.0
Catholic or other private	13.0	67.8	10.7	8.5	22.1	68.6	7.8	1.5

¹ Interpret data with caution. Estimate is unstable because the standard error is between 30 and 50 percent of the estimate.

[‡] Reporting standards not met either because the standard error is greater than 50 percent of the estimate or because there were too few cases for a reliable estimate.

¹ This category includes students who enrolled in a postsecondary certificate or degree program but did not complete a certificate or degree.

² Includes people who attained any postsecondary credential, including certificates, associate's degrees, bachelor's degrees, and/or graduate degrees.

³ "Dual enrollment" refers to enrollment in courses to earn college credit while still in high school. For students who participated in dual enrollment, this is considered their first postsecondary enrollment. It is determined based on dates of attendance at each postsecondary institution and the last date the student attended high school. Dual enrollment includes students whose only experience in postsecondary education was dual enrollment (i.e., they did not enroll in any postsecondary education after high school) and students who were dual-enrolled during high school and also enrolled in postsecondary education after high school completion. To have their data included in these estimates, dual-enrolled students who did not have postsecondary enrollment after high school must have been enrolled in a postsecondary degree or credential program during high school.

⁴ Participants could select multiple gender identities. "Female" includes students who only selected female, and "male" includes students who only selected male. "Another gender" includes students who selected multiple gender identities and/or students who selected "transgender, male-to-female;" "transgender, female-to-male;" "genderqueer or gender nonconforming, or some other gender;" or not sure.

⁵ Black includes African American; Hispanic includes Latino; and Two or more races includes persons having origins in more than one race. Race categories exclude persons of Hispanic ethnicity.

⁶ High school credential includes high school diploma, GED certificate, certificate of attendance or completion, or other high school equivalency credential.

⁷ Certificate or associate's degree includes certificates/diplomas from schools providing occupational training or associate's degree programs.

⁸ Bachelor's degree or higher includes bachelor's degrees, master's degrees, Ph.D.'s, MDs, law degrees (i.e., JDs), and other higher level professional degrees.

⁹ The mathematics assessment was designed to provide a measure of student achievement in algebraic reasoning. The test framework covers a representative cross-section of the major domains and key processes of algebra. For more information on the design of the assessment, see chapter 2 of the *High School Longitudinal Study of 2009 (HSLs:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013). Estimates include students who, at the HSLs:09 first follow-up, were in school in grade 11, as well as those who were in school but not in grade 11, early graduates, and students who had left school.

¹⁰ Students for whom cumulative high school GPA was equal to zero are not included.

¹¹ Estimates exclude students who were not in school as of the HSLs:09 first follow-up and include in-school students who were in a grade other than 11 at the time of the first follow-up.

NOTE: This table excludes students who only enrolled in postsecondary courses and did not enroll in a postsecondary credential or degree program. Estimates in this table pertain to fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program by June 30, 2021, and are weighted using W6PEAR. Detail may not sum to totals due to rounding.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLs:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table A-6. PATHWAYS IN POSTSECONDARY EDUCATION: Among fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program, percentage who ever transferred to another postsecondary institution or ever had a stopout longer than 4 months, by degree attainment status and selected student and school characteristics: June 2021

Selected student and school characteristics	No postsecondary attainment ¹		Attained a postsecondary credential ²	
	Ever transferred	Ever had a stopout longer than 4 months	Ever transferred	Ever had a stopout longer than 4 months
Total	30.2	52.0	30.3	38.9
Gender ³				
Female	32.5	56.1	31.0	41.3
Male	27.3	50.5	28.4	34.8
Another gender	32.9	49.3	24.0	38.7
Race/ethnicity ⁴				
American Indian or Alaska Native	‡	58.7	45.1	47.7
Asian	50.1	62.1	26.7	38.5
Black	42.3	57.9	34.4	36.3
Hispanic	24.1	52.0	35.8	47.2
Native Hawaiian or other Pacific Islander	‡	44.5!	23.4!	36.3!
White	28.5	49.2	27.8	35.6
Two or more races	25.5	49.5	34.6	48.1
Highest education attained by either parent				
High school credential or lower ⁵	29.8	50.3	32.6	41.8
Certificate or associate's degree ⁶	31.1	54.0	33.3	40.6
Bachelor's degree or higher ⁷	32.5	54.7	27.8	36.1
Family income in 2011				
\$35,000 or less	29.0	53.1	32.7	41.1
\$35,001 to \$55,000	31.0	47.4	33.3	40.2
\$55,001 to \$75,000	32.6	54.6	33.1	43.4
\$75,001 to \$115,000	31.4	53.4	28.4	37.9
\$115,001 and higher	34.4	54.5	26.1	33.4
Mathematics achievement quintile in 11th grade ⁸				
Lowest fifth	26.2	42.3	39.5	45.0
Middle three-fifths	31.4	54.4	34.3	40.5
Highest fifth	36.2	58.9	20.9	34.2
Cumulative high school grade point average ⁹				
Lower than 2.50	28.8	50.3	42.9	45.4
2.50–2.99	33.1	56.3	36.7	40.4
3.0–3.49	32.1	51.2	30.2	39.2
3.50 or higher	37.5	59.6	19.2	33.8
School locale in 11th grade ¹⁰				
City	33.0	55.1	29.3	40.1
Suburb	30.9	53.1	29.7	35.4
Town	29.5	52.0	33.6	42.6
Rural	31.1	51.1	29.9	38.9

See notes at end of table.

Table A-6. PATHWAYS IN POSTSECONDARY EDUCATION: Among fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program, percentage who ever transferred to another postsecondary institution or ever had a stopout longer than 4 months, by degree attainment status and selected student and school characteristics: June 2021—Continued

Selected student and school characteristics	No postsecondary attainment ¹		Attained a postsecondary credential ²	
	Ever transferred	Ever had a stopout longer than 4 months	Ever transferred	Ever had a stopout longer than 4 months
School control in 11th grade ¹⁰				
Public	31.0	52.9	31.0	39.4
Catholic or other private	43.6	56.6	22.9	32.0

¹ Interpret data with caution. Estimate is unstable because the standard error is between 30 and 50 percent of the estimate.

² Reporting standards not met either because the standard error is greater than 50 percent of the estimate or because there were too few cases for a reliable estimate.

³ This category includes students who enrolled in a postsecondary certificate or degree program but did not complete a certificate or degree.

⁴ Includes people who attained any postsecondary credential, including certificates, associate's degrees, bachelor's degrees, and/or graduate degrees.

⁵ Participants could select multiple gender identities. "Female" includes students who only selected female, and "male" includes students who only selected male. "Another gender" includes students who selected multiple gender identities and/or students who selected "transgender, male-to-female," "transgender, female-to-male," "genderqueer or gender nonconforming, or some other gender," or not sure.

⁶ Black includes African American; Hispanic includes Latino; and Two or more races includes persons having origins in more than one race. Race categories exclude persons of Hispanic ethnicity.

⁷ High school credential includes high school diploma, GED certificate, certificate of attendance or completion, or other high school equivalency credential.

⁸ Certificate or associate's degree includes certificates/diplomas from schools providing occupational training or associate's degree programs.

⁹ Bachelor's degree or higher includes bachelor's degrees, master's degrees, Ph.D.'s, MDs, law degrees (i.e., JDs), and other higher level professional degrees.

¹⁰ The mathematics assessment was designed to provide a measure of student achievement in algebraic reasoning. The test framework covers a representative cross-section of the major domains and key processes of algebra. For more information on the design of the assessment, see chapter 2 of the *High School Longitudinal Study of 2009 (HSL:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013). Estimates include students who, at the HSL:09 first follow-up, were in school in grade 11, as well as those who were in school but not in grade 11, early graduates, and students who had left school.

¹¹ Students for whom cumulative high school GPA was equal to zero are not included.

¹² Estimates exclude students who were not in school as of the HSL:09 first follow-up and include in-school students who were in a grade other than 11 at the time of the first follow-up.

NOTE: This table excludes students who only enrolled in postsecondary courses and did not enroll in a postsecondary credential or degree program. Estimates in this table pertain to fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program by June 30, 2021, and are weighted using W6PEAR. A stopout is defined as a student's gap in enrollment (i.e., a period of nonenrollment following a period of enrollment and preceding another period of enrollment). Stopouts are calculated based on students' month-by-month enrollment status.

"Ever transferred" and "Ever had a stopout of 4 or more months" are not mutually exclusive categories and only represent a subset of all students with and without a postsecondary credential.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSL:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table A-7. GRADUATE SCHOOL ENROLLMENT AND ATTAINMENT: Among fall 2009 ninth-graders who ever enrolled in postsecondary education, percentage who ever enrolled in a graduate degree program and percentage who ever attained a graduate degree, by selected student and school characteristics: June 2021

Selected student and school characteristics	Ever enrolled in a graduate degree program	Ever attained a graduate degree
Total	12.8	7.2
Gender ¹		
Female	17.4	10.3
Male	11.2	6.0
Another gender	10.2	5.5!
Race/ethnicity ²		
American Indian or Alaska Native	‡	‡
Asian	19.7	10.7
Black	8.2	4.3
Hispanic	7.9	4.1
Native Hawaiian or other Pacific Islander	‡	‡
White	15.6	9.0
Two or more races	11.0	6.4
Highest education attained by either parent		
High school credential or lower ³	7.0	3.7
Certificate or associate's degree ⁴	8.8	4.5
Bachelor's degree or higher ⁵	20.7	12.1
Family income in 2011		
\$35,000 or less	6.7	3.4
\$35,001 to \$55,000	10.8	5.6
\$55,001 to \$75,000	11.4	5.5
\$75,001 to \$115,000	19.3	11.8
\$115,001 and higher	19.4	11.7
Mathematics achievement quintile in 11th grade ⁶		
Lowest fifth	2.7	1.1!
Middle three-fifths	10.8	5.8
Highest fifth	24.5	14.6
Cumulative high school grade point average ⁷		
Lower than 2.50	1.8	0.3!
2.50–2.99	8.1	3.6
3.0–3.49	14.9	8.3
3.50 or higher	31.8	20.1
School locale in 11th grade ⁸		
City	12.9	7.2
Suburb	14.8	8.4
Town	11.7	6.6
Rural	13.8	7.5
School control in 11th grade ⁸		
Public	12.5	6.8
Catholic or other private	24.9	15.7

! Interpret data with caution. Estimate is unstable because the standard error is between 30 and 50 percent of the estimate.

‡ Reporting standards not met either because the standard error is greater than 50 percent of the estimate or because there were too few cases for a reliable estimate.

¹ Participants could select multiple gender identities. "Female" includes students who only selected female, and "male" includes students who only selected male. "Another gender" includes students who selected multiple gender identities and/or students who selected "transgender, male-to-female;" "transgender, female-to-male;" "genderqueer or gender nonconforming, or some other gender;" or not sure.

² Black includes African American; Hispanic includes Latino; and Two or more races includes persons having origins in more than one race. Race categories exclude persons of Hispanic ethnicity.

³ High school credential includes high school diploma, GED certificate, certificate of attendance or completion, or other high school equivalency credential.

⁴ Certificate or associate's degree includes certificates/diplomas from schools providing occupational training or associate's degree programs.

⁵ Bachelor's degree or higher includes bachelor's degrees, master's degrees, Ph.D.'s, MDs, law degrees (i.e., JDs), and other higher level professional degrees.

⁶ The mathematics assessment was designed to provide a measure of student achievement in algebraic reasoning. The test framework covers a representative cross-section of the major domains and key processes of algebra. For more information on the design of the assessment, see chapter 2 of the *High School Longitudinal Study of 2009 (HSL:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013). Estimates include students who, at the HSL:09 first follow-up, were in school in grade 11, as well as those who were in school but not in grade 11, early graduates, and students who had left school.

⁷ Students for whom cumulative high school GPA was equal to zero are not included.

⁸ Estimates exclude students who were not in school as of the HSL:09 first follow-up and include in-school students who were in a grade other than 11 at the time of the first follow-up.

NOTE: "Ever enrolled in postsecondary education" refers to ever enrolling in a postsecondary course or a postsecondary certificate or degree program. Estimates in this table pertain to fall 2009 ninth-graders who ever enrolled in postsecondary education by June 30, 2021, and are weighted using W6PEAR.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSL:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table A-8. UNDERGRADUATE FEDERAL FINANCIAL AID RECEIPT: Among fall 2009 ninth-graders who ever enrolled in postsecondary education, percentage who received federal student loans or Pell Grants, and average amounts received, for undergraduate education, by selected student and school characteristics: June 2021

Selected student and school characteristics	Federal student loans ¹		Pell Grant ²	
	Percent who received loans	Average cumulative loan amount received ³	Percent who received a Pell Grant	Average cumulative Pell Grant amount received ³
Total	60.4	\$17,900	60.6	\$10,800
Gender ⁴				
Female	65.0	18,900	63.2	11,800
Male	55.2	17,800	55.1	10,500
Another gender	67.5	18,100	60.5	11,300
Race/ethnicity ⁵				
American Indian or Alaska Native	42.6!	21,100	69.8	11,600
Asian	48.8	18,700	66.8	14,800
Black	72.7	18,600	85.1	12,000
Hispanic	52.8	15,200	74.3	11,200
Native Hawaiian or other Pacific Islander	44.9	20,700	59.3	14,300
White	60.9	18,500	47.8	9,700
Two or more races	64.7	17,900	67.2	10,500
Highest education attained by either parent				
High school credential or lower ⁶	59.2	16,400	74.4	10,900
Certificate or associate's degree ⁷	61.8	17,600	67.1	11,300
Bachelor's degree or higher ⁸	61.0	19,800	43.7	10,800
Family income in 2011				
\$35,000 or less	59.4	16,000	81.7	11,900
\$35,001 to \$55,000	61.7	17,900	76.7	11,300
\$55,001 to \$75,000	61.6	19,000	62.0	10,400
\$75,001 to \$115,000	64.4	19,600	42.7	9,600
\$115,001 and higher	56.2	19,100	29.9	9,300
Mathematics achievement quintile in 11th grade ⁹				
Lowest fifth	53.7	14,300	74.9	9,400
Middle three-fifths	61.6	18,100	63.1	11,200
Highest fifth	61.3	19,900	44.4	11,600
Cumulative high school grade point average ¹⁰				
Lower than 2.50	54.3	13,300	73.9	8,500
2.50–2.99	61.3	18,300	64.8	11,900
3.0–3.49	65.4	20,000	53.9	12,200
3.50 or higher	63.7	20,400	44.6	13,100
School locale in 11th grade ¹¹				
City	57.9	17,300	63.6	11,500
Suburb	62.4	19,100	55.8	11,300
Town	61.0	18,100	60.9	10,700
Rural	62.0	18,300	57.9	10,500
School control in 11th grade ¹¹				
Public	60.9	18,000	61.6	11,100
Catholic or other private	58.4	20,600	35.6	11,400

! Interpret data with caution. Estimate is unstable because the standard error is between 30 and 50 percent of the estimate.

¹ Federal student loans for undergraduate education include Direct Stafford Subsidized Loans, Stafford Unsubsidized Loans, Supplemental Loans for Students, and Perkins Loans. Parent PLUS Loans are not included.

² Pell Grants are federal financial awards provided to undergraduate students who demonstrate significant financial need.

³ The amount of selected types of aid received is calculated only for students who received such aid.

⁴ Participants could select multiple gender identities. "Female" includes students who only selected female, and "male" includes students who only selected male. "Another gender" includes students who selected multiple gender identities and/or students who selected "transgender, male-to-female," "transgender, female-to-male," "genderqueer or gender nonconforming, or some other gender," or not sure.

⁵ Black includes African American; Hispanic includes Latino; and Two or more races includes persons having origins in more than one race. Race categories exclude persons of Hispanic ethnicity.

⁶ High school credential includes high school diploma, GED certificate, certificate of attendance or completion, or other high school equivalency credential.

⁷ Certificate or associate's degree includes certificates/diplomas from schools providing occupational training or associate's degree programs.

⁸ Bachelor's degree or higher includes bachelor's degrees, master's degrees, Ph.D.'s, MDs, law degrees (i.e., JDs), and other higher level professional degrees.

⁹ The mathematics assessment was designed to provide a measure of student achievement in algebraic reasoning. The test framework covers a representative cross-section of the major domains and key processes of algebra. For more information on the design of the assessment, see chapter 2 of the *High School Longitudinal Study of 2009 (HSL:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013). Estimates include students who, at the HSL:09 first follow-up, were in school in grade 11, as well as those who were in school but not in grade 11, early graduates, and students who had left school.

¹⁰ Students for whom cumulative high school GPA was equal to zero are not included.

¹¹ Estimates exclude students who were not in school as of the HSL:09 first follow-up and include in-school students who were in a grade other than 11 at the time of the first follow-up.

NOTE: "Ever enrolled in postsecondary education" refers to ever enrolling in a postsecondary course or a postsecondary certificate or degree program. Estimates in this table pertain to fall 2009 ninth-graders who ever enrolled in postsecondary education by June 30, 2021, and are weighted using W6PEAR.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSL:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table AS-1. Standard errors for Table A-1: CHARACTERISTICS OF COHORT MEMBERS WHO EVER ENROLLED IN POSTSECONDARY EDUCATION: Percentage distribution of fall 2009 ninth-graders who ever enrolled in postsecondary education, by selected student and school characteristics: June 2021

Selected student and school characteristics	Fall 2009 ninth-graders who ever enrolled in postsecondary education
Total	†
Gender	
Female	0.83
Male	0.82
Another gender	0.16
Race/ethnicity	
American Indian or Alaska Native	0.25
Asian	0.45
Black	0.85
Hispanic	0.97
Native Hawaiian or other Pacific Islander	0.12
White	1.22
Two or more races	0.36
Highest education attained by either parent	
High school credential or lower	1.04
Certificate or associate's degree	0.50
Bachelor's degree or higher	1.06
Family income in 2011	
\$35,000 or less	1.05
\$35,001 to \$55,000	0.57
\$55,001 to \$75,000	0.47
\$75,001 to \$115,000	0.57
\$115,001 and higher	0.69
Mathematics achievement quintile in 11th grade	
Lowest fifth	0.66
Middle three-fifths	0.74
Highest fifth	0.77
Cumulative high school grade point average	
Lower than 2.50	0.82
2.50–2.99	0.61
3.0–3.49	0.60
3.50 or higher	0.63
School locale in 11th grade	
City	1.09
Suburb	1.47
Town	0.96
Rural	1.17
School control in 11th grade	
Public	0.28
Catholic or other private	0.28

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSL:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table AS-2. Standard errors for Table A-2: CREDENTIALS EARNED: Among fall 2009 ninth-graders who ever enrolled in postsecondary education, percentage distribution of highest degree attained, by selected student and school characteristics: June 2021

Selected student and school characteristics	No postsecondary credential	Post-secondary certificate or diploma	Associate's degree	Bachelor's degree	Graduate degree
Total	0.97	0.46	0.47	0.87	0.35
Gender					
Female	1.37	0.62	0.72	1.29	0.59
Male	1.24	0.60	0.67	1.13	0.47
Another gender	5.22	1.92	2.68	4.74	1.87
Race/ethnicity					
American Indian or Alaska Native	17.16	†	4.23	†	†
Asian	3.00	0.59	1.23	3.21	1.40
Black	2.93	1.35	1.01	2.03	0.80
Hispanic	2.06	1.50	1.32	2.00	0.72
Native Hawaiian or other Pacific Islander	12.65	†	†	10.30	†
White	0.84	0.41	0.56	0.94	0.45
Two or more races	2.38	1.05	1.60	1.82	1.01
Highest education attained by either parent					
High school credential or lower	1.64	0.93	0.78	1.32	0.43
Certificate or associate's degree	1.63	0.85	1.05	1.26	0.55
Bachelor's degree or higher	0.88	0.39	0.61	0.93	0.61
Family income in 2011					
\$35,000 or less	2.30	1.09	1.05	1.46	0.44
\$35,001 to \$55,000	1.80	0.88	1.09	1.51	0.74
\$55,001 to \$75,000	1.55	0.97	1.18	1.75	0.67
\$75,001 to \$115,000	1.30	0.57	0.82	1.47	0.88
\$115,001 and higher	1.33	0.68	0.70	1.33	0.78
Mathematics achievement quintile in 11th grade					
Lowest fifth	2.04	1.31	1.30	1.51	0.38
Middle three-fifths	1.12	0.60	0.69	0.90	0.38
Highest fifth	1.13	0.42	0.65	1.31	0.82
Cumulative high school grade point average					
Lower than 2.50	1.81	1.04	0.79	1.22	0.10
2.50–2.99	1.53	0.79	1.07	1.36	0.51
3.0–3.49	1.13	0.57	0.91	1.33	0.70
3.50 or higher	0.92	0.28	0.77	1.34	1.02
School locale in 11th grade					
City	2.33	1.09	0.83	1.97	0.77
Suburb	1.38	0.74	0.74	1.55	0.56
Town	2.41	1.02	1.96	1.93	0.87
Rural	1.26	0.75	0.87	1.27	0.81
School control in 11th grade					
Public	1.04	0.50	0.52	0.96	0.38
Catholic or other private	1.72	0.92	1.21	2.31	1.16

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSL:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table AS-3. Standard errors for Table A-3: STEM DEGREES EARNED: Among fall 2009 ninth-graders who had completed a postsecondary degree or certificate, percentage whose highest degree was in non-STEM and STEM fields, by selected student and school characteristics: June 2021

Selected student and school characteristics	STEM fields			
	Non-STEM field	Computer and information sciences	Engineering and engineering technology	Biological and physical sciences, science technology, mathematics, and agricultural sciences
Total	0.70	0.26	0.41	0.55
Gender				
Female	0.96	0.25	0.39	0.84
Male	1.33	0.63	1.02	0.68
Another gender	5.32	3.23	†	3.95
Race/ethnicity				
American Indian or Alaska Native	7.35	†	†	†
Asian	3.29	1.30	1.68	2.57
Black	1.76	0.68	0.89	1.41
Hispanic	1.81	0.71	1.16	1.43
Native Hawaiian or other Pacific Islander	12.61	†	†	†
White	0.89	0.35	0.49	0.65
Two or more races	2.40	0.82	1.78	1.43
Highest education attained by either parent				
High school credential or lower	1.15	0.56	0.70	0.82
Certificate or associate's degree	1.33	0.47	0.71	1.11
Bachelor's degree or higher	0.91	0.36	0.63	0.68
Family income in 2011				
\$35,000 or less	1.65	0.63	1.02	1.14
\$35,001 to \$55,000	1.41	0.74	0.72	1.04
\$55,001 to \$75,000	1.93	0.74	1.04	1.65
\$75,001 to \$115,000	1.34	0.52	0.78	1.13
\$115,001 and higher	1.29	0.52	0.90	0.88
Mathematics achievement quintile in 11th grade				
Lowest fifth	1.46	0.77	0.62	1.22
Middle three-fifths	0.70	0.29	0.45	0.54
Highest fifth	1.56	0.57	0.89	1.13
Cumulative high school grade point average				
Lower than 2.50	1.18	0.51	1.09	0.62
2.50–2.99	1.22	0.55	0.80	1.01
3.0–3.49	1.29	0.46	0.66	0.94
3.50 or higher	1.40	0.52	0.76	1.13
School locale in 11th grade				
City	1.36	0.51	0.90	1.04
Suburb	0.99	0.53	0.68	0.91
Town	1.74	0.71	1.36	1.36
Rural	1.63	0.52	0.65	1.32
School control in 11th grade				
Public	0.80	0.29	0.47	0.64
Catholic or other private	1.31	0.55	0.81	0.86

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HLS:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table AS-4. Standard errors for Table A-4: PERSISTENCE AND ATTAINMENT: Among fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program, percentage who were no longer enrolled, who were enrolled at different levels of postsecondary institutions, and who attained a postsecondary credential, by selected student and school characteristics: June 2021

Selected student and school characteristics	No postsecondary attainment			Attained a postsecondary credential
	Not enrolled	Enrolled at less-than-4-year institution	Enrolled at 4-year institution	
Total	0.70	0.57	0.28	0.99
Gender				
Female	0.98	0.76	0.38	1.40
Male	1.18	0.52	0.54	1.24
Another gender	5.17	†	†	5.40
Race/ethnicity				
American Indian or Alaska Native	12.03	†	†	17.21
Asian	1.96	0.76	2.32	3.23
Black	2.54	3.22	1.01	3.01
Hispanic	1.76	1.00	0.91	2.12
Native Hawaiian or other Pacific Islander	13.71	†	†	13.15
White	0.75	0.25	0.21	0.83
Two or more races	2.60	0.74	0.79	2.44
Highest education attained by either parent				
High school credential or lower	1.29	1.23	0.60	1.69
Certificate or associate's degree	1.53	0.64	0.66	1.63
Bachelor's degree or higher	0.75	0.24	0.35	0.88
Family income in 2011				
\$35,000 or less	1.46	1.55	0.57	2.41
\$35,001 to \$55,000	1.69	0.51	0.78	1.84
\$55,001 to \$75,000	1.52	0.58	0.72	1.55
\$75,001 to \$115,000	1.12	0.63	0.44	1.26
\$115,001 and higher	1.21	0.43	0.42	1.31
Mathematics achievement quintile in 11th grade				
Lowest fifth	2.15	1.43	0.59	2.15
Middle three-fifths	0.78	0.58	0.41	1.14
Highest fifth	0.94	0.27	0.44	1.11
Cumulative high school grade point average				
Lower than 2.50	1.51	1.53	0.61	1.93
2.50–2.99	1.23	0.60	0.70	1.56
3.0–3.49	1.11	0.26	0.33	1.12
3.50 or higher	0.84	0.19	0.25	0.91
School locale in 11th grade				
City	1.65	1.07	0.73	2.45
Suburb	1.26	0.37	0.38	1.39
Town	2.24	0.59	0.60	2.48
Rural	1.18	0.47	0.33	1.32
School control in 11th grade				
Public	0.80	0.40	0.31	1.07
Catholic or other private	1.41	0.33	0.68	1.69

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HLS:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table AS-5. Standard errors for Table A-5: FIRST ENTRY INTO POSTSECONDARY EDUCATION: Among fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program, percentage who were ever dual enrolled and percentage with different timing of entry into postsecondary education after high school, by degree attainment status and selected student and school characteristics: June 2021

Selected student and school characteristics	No postsecondary attainment				Attained a postsecondary credential			
	Ever dual enrolled	Timing of first postsecondary entry after leaving high school			Ever dual enrolled	Timing of first postsecondary entry after leaving high school		
		Within 3 months of leaving high school	4–12 months after leaving high school	More than 12 months after leaving high school		Within 3 months of leaving high school	4–12 months after leaving high school	More than 12 months after leaving high school
Total	0.99	1.32	0.95	1.01	1.38	1.35	0.60	0.40
Gender								
Female	1.35	2.41	1.47	1.93	1.52	1.48	0.75	0.56
Male	1.38	2.12	1.41	1.56	1.74	1.83	0.77	0.66
Another gender	8.00	9.70	†	8.10	5.81	7.07	3.12	4.81
Race/ethnicity								
American Indian or Alaska Native	†	12.22	11.54	12.40	10.02	11.26	†	†
Asian	5.38	5.25	3.25	2.68	2.85	3.56	3.65	0.59
Black	2.37	2.85	2.50	2.01	3.67	4.07	1.78	1.51
Hispanic	1.88	3.22	2.04	2.78	2.38	2.54	1.23	1.28
Native Hawaiian or other Pacific Islander	†	21.50	†	†	12.42	12.45	†	†
White	1.51	1.56	0.86	1.06	1.77	1.60	0.72	0.45
Two or more races	2.64	4.69	2.49	3.47	2.78	2.78	1.38	2.12
Highest education attained by either parent								
High school credential or lower	1.27	2.03	1.74	1.55	1.75	1.68	1.08	0.97
Certificate or associate's degree	1.83	2.66	1.26	1.96	2.07	2.32	1.44	0.91
Bachelor's degree or higher	1.62	1.79	1.10	1.47	1.53	1.50	0.65	0.38
Family income in 2011								
\$35,000 or less	1.49	2.60	1.77	2.12	2.03	2.08	1.45	1.16
\$35,001 to \$55,000	1.66	2.70	1.96	2.28	2.49	2.61	1.31	0.80
\$55,001 to \$75,000	2.48	3.27	1.87	2.91	2.13	2.55	0.90	0.91
\$75,001 to \$115,000	2.20	2.54	2.16	1.79	2.07	1.95	0.86	0.73
\$115,001 and higher	2.03	2.86	1.80	2.45	1.90	1.79	0.94	0.50
Mathematics achievement quintile in 11th grade								
Lowest fifth	2.22	3.50	2.06	2.87	2.49	3.48	2.36	1.84
Middle three-fifths	1.25	2.31	1.21	1.42	1.54	1.48	0.65	0.56
Highest fifth	2.76	3.04	1.58	1.83	2.05	2.00	0.84	0.41
Cumulative high school grade point average								
Lower than 2.50	1.11	2.12	1.57	1.67	2.26	2.30	1.59	1.55
2.50–2.99	1.73	2.40	1.32	2.19	1.91	2.06	0.92	1.09
3.0–3.49	2.39	2.72	1.14	1.44	1.62	1.69	0.72	0.53
3.50 or higher	4.35	5.03	3.19	1.91	2.15	1.91	0.73	0.20

See notes at end of table.

Table AS-5. Standard errors for Table A-5: FIRST ENTRY INTO POSTSECONDARY EDUCATION: Among fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program, percentage who were ever dual enrolled and percentage with different timing of entry into postsecondary education after high school, by degree attainment status and selected student and school characteristics: June 2021—Continued

Selected student and school characteristics	No postsecondary attainment				Attained a postsecondary credential			
	Ever dual enrolled	Timing of first postsecondary entry after leaving high school			Ever dual enrolled	Timing of first postsecondary entry after leaving high school		
		Within 3 months of leaving high school	4–12 months after leaving high school	More than 12 months after leaving high school		Within 3 months of leaving high school	4–12 months after leaving high school	More than 12 months after leaving high school
School locale in 11th grade								
City	1.66	3.82	2.23	3.01	2.35	2.32	1.09	0.73
Suburb	1.38	1.96	1.29	1.90	2.04	1.93	1.04	0.58
Town	3.01	3.88	1.91	2.57	4.82	4.60	1.72	1.11
Rural	2.78	2.57	1.69	1.72	2.79	2.48	1.08	0.71
School control in 11th grade								
Public	1.11	1.64	1.00	1.24	1.52	1.43	0.61	0.39
Catholic or other private	2.64	4.45	2.98	2.04	2.62	3.12	1.66	0.42

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HLS:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table AS-6. Standard errors for Table A-6: PATHWAYS IN POSTSECONDARY EDUCATION: Among fall 2009 ninth-graders who ever enrolled in a postsecondary credential or degree program, percentage who ever transferred to another postsecondary institution or ever had a stopout longer than 4 months, by degree attainment status and selected student and school characteristics: June 2021

Selected student and school characteristics	No postsecondary attainment		Attained a postsecondary credential	
	Ever transferred	Ever had a stopout longer than 4 months	Ever transferred	Ever had a stopout longer than 4 months
Total	1.21	1.27	0.85	0.82
Gender				
Female	1.78	1.90	1.16	1.15
Male	1.68	1.93	1.36	1.33
Another gender	8.95	9.62	6.34	6.43
Race/ethnicity				
American Indian or Alaska Native	†	11.22	11.21	11.07
Asian	7.38	5.90	2.65	3.17
Black	4.16	3.38	2.98	3.04
Hispanic	3.12	2.90	2.34	2.55
Native Hawaiian or other Pacific Islander	†	20.35	10.26	13.24
White	1.25	1.36	0.91	0.98
Two or more races	3.04	3.50	2.71	2.72
Highest education attained by either parent				
High school credential or lower	2.35	2.21	1.52	1.70
Certificate or associate's degree	2.59	2.63	1.89	1.78
Bachelor's degree or higher	1.88	1.94	1.08	1.09
Family income in 2011				
\$35,000 or less	2.28	2.79	1.79	2.02
\$35,001 to \$55,000	2.35	2.85	2.14	2.30
\$55,001 to \$75,000	3.32	3.43	2.33	2.42
\$75,001 to \$115,000	2.64	2.67	1.46	1.63
\$115,001 and higher	2.87	3.02	1.33	1.62
Mathematics achievement quintile in 11th grade				
Lowest fifth	2.98	3.04	3.59	3.23
Middle three-fifths	1.45	1.79	1.16	1.08
Highest fifth	2.92	2.90	1.13	1.50
Cumulative high school grade point average				
Lower than 2.50	2.21	2.50	2.75	2.28
2.50–2.99	2.05	2.07	1.83	1.87
3.0–3.49	2.15	2.29	1.31	1.62
3.50 or higher	4.54	4.34	1.11	1.71
School locale in 11th grade				
City	3.54	4.39	1.78	1.82
Suburb	1.53	1.91	1.36	1.27
Town	3.25	3.97	3.07	3.31
Rural	2.33	1.65	1.41	1.66
School control in 11th grade				
Public	1.53	1.74	0.92	0.90
Catholic or other private	4.30	4.45	1.88	2.48

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HLS:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table AS-7. Standard errors for Table A-7: GRADUATE SCHOOL ENROLLMENT AND ATTAINMENT: Among fall 2009 ninth-graders who ever enrolled in postsecondary education, percentage who ever enrolled in a graduate degree program and percentage who ever attained a graduate degree, by selected student and school characteristics: June 2021

Selected student and school characteristics	Ever enrolled in a graduate degree program	Ever attained a graduate degree
Total	0.48	0.35
Gender		
Female	0.79	0.59
Male	0.62	0.47
Another gender	2.77	1.87
Race/ethnicity		
American Indian or Alaska Native	†	†
Asian	2.15	1.40
Black	1.05	0.80
Hispanic	0.97	0.72
Native Hawaiian or other Pacific Islander	†	†
White	0.60	0.45
Two or more races	1.27	1.01
Highest education attained by either parent		
High school credential or lower	0.55	0.43
Certificate or associate's degree	0.74	0.55
Bachelor's degree or higher	0.76	0.61
Family income in 2011		
\$35,000 or less	0.62	0.44
\$35,001 to \$55,000	0.89	0.74
\$55,001 to \$75,000	1.00	0.67
\$75,001 to \$115,000	1.09	0.88
\$115,001 and higher	0.96	0.78
Mathematics achievement quintile in 11th grade		
Lowest fifth	0.55	0.38
Middle three-fifths	0.51	0.38
Highest fifth	1.05	0.82
Cumulative high school grade point average		
Lower than 2.50	0.27	0.10
2.50–2.99	0.78	0.51
3.0–3.49	0.95	0.70
3.50 or higher	1.17	1.02
School locale in 11th grade		
City	1.06	0.77
Suburb	0.88	0.56
Town	1.16	0.87
Rural	0.97	0.81
School control in 11th grade		
Public	0.54	0.38
Catholic or other private	1.63	1.16

† Not applicable.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSL:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Table AS-8. Standard errors for Table A-8: UNDERGRADUATE FEDERAL FINANCIAL AID RECEIPT: Among fall 2009 ninth-graders who ever enrolled in postsecondary education, percentage who received federal student loans or Pell Grants, and average amounts received, for undergraduate education, by selected student and school characteristics: June 2021

Selected student and school characteristics	Federal student loans		Pell Grant	
	Percent who received loans	Average cumulative loan amount received	Percent who received a Pell Grant	Average cumulative Pell Grant amount received
Total	0.80	\$320	0.82	\$160
Gender				
Female	0.99	450	1.02	280
Male	1.35	370	1.23	260
Another gender	5.41	1,600	5.00	1,400
Race/ethnicity				
American Indian or Alaska Native	16.28	3,380	7.07	1,980
Asian	3.29	920	2.57	630
Black	2.64	1,220	1.75	430
Hispanic	1.95	690	1.48	370
Native Hawaiian or other Pacific Islander	10.11	2,630	11.70	2,840
White	0.84	230	0.91	170
Two or more races	2.25	830	2.11	510
Highest education attained by either parent				
High school credential or lower	1.27	590	1.03	290
Certificate or associate's degree	1.51	510	1.45	340
Bachelor's degree or higher	1.07	300	1.03	270
Family income in 2011				
\$35,000 or less	1.89	870	1.01	380
\$35,001 to \$55,000	1.55	500	1.38	360
\$55,001 to \$75,000	1.48	500	1.58	390
\$75,001 to \$115,000	1.38	410	1.37	380
\$115,001 and higher	1.45	370	1.33	420
Mathematics achievement quintile in 11th grade				
Lowest fifth	1.89	770	1.97	480
Middle three-fifths	1.09	440	1.12	220
Highest fifth	1.34	330	1.38	370
Cumulative high school grade point average				
Lower than 2.50	2.13	660	1.55	270
2.50–2.99	1.62	450	1.44	380
3.0–3.49	1.35	430	1.27	320
3.50 or higher	1.31	370	1.48	410
School locale in 11th grade				
City	2.06	910	1.81	380
Suburb	1.39	390	1.65	300
Town	3.29	460	2.41	500
Rural	1.30	360	1.69	270
School control in 11th grade				
Public	0.91	350	0.93	190
Catholic or other private	2.36	510	2.20	550

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSL:09) First Follow-Up, High School Transcript Study, Second Follow-Up, and Postsecondary Education Administrative Records Data Collection.

Appendix B— HSLs:09 PEAR Technical Notes and References

Appendix B provides information about the High School Longitudinal Study of 2009 (HSLs:09) Postsecondary Education Administrative Records Study (PEAR), as well as about the statistical procedures used in this report. HSLs:09 PEAR is discussed in the first eight sections (B.1 through B.8), followed by a discussion of the report’s variance estimation in section B.9 and statistical testing in section B.10.

High School Longitudinal Study of 2009 (HSLs:09) Postsecondary Administrative Records Collection Data File Documentation (Rogers et al. forthcoming) provides a comprehensive discussion of PEAR and summaries of previous HSLs:09 data collections. For detailed information on the prior rounds of data collection for the HSLs:09 cohort, please see the following:

- For the base-year collection, see *High School Longitudinal Study of 2009 (HSLs:09) Base-Year Data File Documentation* (Ingels et al. 2011);
- For the first follow-up, see *High School Longitudinal Study of 2009 (HSLs:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013);
- For the 2013 Update and High School Transcript collection, see *High School Longitudinal Study of 2009 (HSLs:09) 2013 Update and High School Transcript Data File Documentation* (Ingels et al. 2015);
- For the second follow-up, see *High School Longitudinal Study of 2009 (HSLs:09) Base-Year to Second Follow-Up Data File Documentation* (Duprey et al. 2018); and
- For the Postsecondary Education Transcript and Student Records collection, see *High School Longitudinal Study of 2009 (HSLs:09) Postsecondary Education Transcript Study and Student Financial Aid Records Collection Data File Documentation* (Duprey et al. 2020).

B.1 Design and Purposes of HSLs:09

HSLs:09 is the fifth in a series of National Center for Education Statistics (NCES) secondary education longitudinal studies. Each of these studies provides information on U.S. students’ transition from high school to young adulthood, including their experiences with further education, participation in the workforce, and assumption of other adult roles (e.g., marriage and family formation). The core research questions for HSLs:09 explore secondary-to-postsecondary transition plans and the evolution of those plans, the paths into and out of STEM curricula and occupations, and the educational and social experiences that affect these transitions.

The HSLs:09 base-year administration took place in the 2009–10 school year, with a randomly selected sample of fall-term ninth-graders in 944 public and private high schools with both a 9th and an 11th grade. Each student took a computer-based mathematics assessment and survey. In addition, students’ parents, school administrators, and mathematics and science teachers, as well as the school’s lead counselor, completed surveys via phone or the Web.

The first follow-up of HSLs:09 took place in 2012, when most sample members were in the spring term of the 11th grade. The first follow-up sample included students who transferred to another school, became homeschooled, completed high school, earned a high school equivalency, or dropped out, as well as those who remained in their base-year high school. Sample members completed both a survey and a mathematics assessment, while their parents, administrators, and counselors also completed a survey.

Study staff administered the 2013 Update survey between June and December 2013. The sample consisted of study-eligible students selected for the base year in 2009–10 who were not deceased as of the 2013 Update. The survey, which the sample member or a parent could complete, gathered basic information about sample members' high school completion status or plans, postsecondary education and work plans, and the college application and financing process.

Between fall 2013 and spring 2014, NCES collected high school transcripts from all high schools that students had attended. These included schools known from the first two data collection rounds, schools identified by the student or parent during the 2013 Update survey, and schools identified during the request for transcripts from already-known schools. Trained staff coded coursetaking records from transcripts using School Courses for the Exchange of Data (SCED), a system for classifying elementary and secondary school courses into standard 12-digit codes reflecting their course content and placement within subjects. This process included standardizing course credits, course grades, and other measures derived from transcripts to ensure comparability across schools.¹ In addition, study staff matched student records to external data sources to obtain SAT and ACT scores, Free Application for Federal Student Aid (FAFSA) data, and GED completion data.

The second follow-up, conducted between March 2016 and January 2017, collected information from the cohort approximately 3 years after the modal high school completion date, June 2013. The second follow-up survey included questions on a variety of academic and employment-related topics, including high school completion and experiences, college enrollment history and future enrollment plans, and employment and unemployment history.

Between spring 2017 and fall 2018, as part of the Postsecondary Education Transcript and Student Records (PETS-SR) data collection, NCES asked all known postsecondary institutions that sample members attended to provide student transcripts and complete the Student Records instrument. The postsecondary transcript data² obtained provide detailed information about students' academic experiences, including academic performance, credit accumulation, enrollment periods, and degree completion. The student records data obtained provide detailed information about students' enrollment patterns, programs of study, tuition and fees, price of attendance, and various types of financial aid received from federal, state, institution, and other sources for each year starting from their first academic year in postsecondary education through 2016–17. In addition to data from institutions, NCES obtained federal loan and grant data from the U.S. Department of Education's (ED) National Student Loan Data System (NSLDS).

In 2021, NCES conducted the PEAR collection, in which the information that students provided in HSLs:09 was linked to their information (i.e., matched) in three administrative databases. Specifically, study staff matched the HSLs:09 cohort to the NSLDS, the Central Processing System (CPS) for financial aid applicants, and the National Student Clearinghouse (NSC) to create a second round of postsecondary administrative records collection. Matches cover the period through June 30, 2021, which is 8 years after the modal high school completion date for the cohort.

¹ See chapter 5 of *HSLs:09 2013 Update and High School Transcript Data File Documentation* (Ingels et al. 2015) for details on transcript keying and coding systems and protocols used in the high school transcript data collection.

² For the PETS-SR data collection, staff coded coursetaking records from postsecondary transcripts using the 2010 Classification of Instructional Programs (CIP) taxonomic scheme. More information about the CIP is available at <https://nces.ed.gov/ipeds/cipcode/>.

B.2 Matching Procedures

The administrative data sources used in HSLs:09 PEAR include CPS, NSLDS, and NSC. CPS and NSLDS data contain information on student enrollment and federal financial aid and are both maintained by the U.S. Department of Education's Office of Federal Student Aid (FSA). NSC is a nonprofit organization that collects enrollment and degree records from postsecondary institutions.³ This section provides details on the processes used to match the HSLs:09 sample members to these sources and the outcomes of the matching processes.

Central Processing System. Each year, students applying for federal student aid are required to enter information about themselves and their family into the FAFSA form. CPS then processes the information and provides it to postsecondary institutions to determine students' eligibility for aid. CPS stores FAFSA completion data for one academic year at a time. A match between an HSLs:09 cohort member and the CPS data for a given year indicates that the sample member applied for federal student aid for that academic year. CPS data were collected for the full HSLs:09 PEAR sample for the 2020–21 and 2021–22 academic years. Social Security numbers (SSNs), which were provided by study respondents, and the first two letters of sample members' last names were used to match to CPS records; thus, if a PEAR sample member did not have a valid SSN on file, no CPS data were retrievable. Of the PEAR sample members, 79.9 percent had the necessary SSN data to attempt a match with the CPS. Of those, 14.9 percent matched to CPS for the 2020–21 academic year and 10.1 percent matched to CPS for the 2021–22 academic year.

National Student Loan Data System. Study staff conducted a match between the HSLs:09 PEAR sample members and NSLDS to obtain enrollment, Title IV grant, and federal student loan data. As with CPS, the match requires SSNs; thus, PEAR sample members missing SSNs were not included in the NSLDS match. The NSLDS data are organized into many separate data files that contain enrollment data as reported by the institutions to the FSA office, as well as complete Title IV grant and loan histories for each individual. Again, 79.9 percent of the PEAR sample had valid SSNs for matching to NSLDS. The NSLDS match yielded enrollment data (term enrollment dates or credential completion information) for 54.5 percent of the PEAR sample. Additionally, student loan data (at least one loan) were identified for 42.1 percent of the PEAR sample, and Title IV grant data (at least one grant) were identified for 37.6 percent of all PEAR sample members.

National Student Clearinghouse. Study staff obtained enrollment and attainment data for the HSLs:09 PEAR sample members from NSC's StudentTracker service. This administrative record-matching service provided information on institutions attended, enrollment dates, and degree completions. An individual student record would match with NSC only if the student's institution was a participant in NSC. The NSC match provided a history of enrollment and degree information through the 2020–21 academic year. At least one enrollment record was identified for 62.5 percent of the PEAR sample.

For all administrative sources, study staff checked the completeness and quality of the data received. Additionally, they compared file layouts to input code to ensure that the files were accurately imported. If an external source provided personally identifiable information from its database, the information was compared to sample members' past survey data to ensure correct matches. If the information did not match, the data were removed, and the sample member was not considered a match. Study staff examined basic summary statistics, such as number of records and value ranges (e.g., dates and amounts), to check for potential outliers or abnormalities and followed up with data providers for corrections or clarifications as necessary.

³ For more information on NSC, visit <https://www.studentclearinghouse.org/>.

B.3 Sample Design

In the base year of HSLs:09, study staff sampled students through a two-stage process. First, they used stratified probability proportional to size sampling to select schools. Sampling and school recruitment resulted in the identification and contacting of 1,889 eligible base-year schools. A total of 944 of these schools participated in the study, resulting in a 56 percent weighted school response rate. This weighted response rate was calculated with the school-level base weight as the sum of the weights for the eligible, responding schools divided by the sum of the weights for all eligible schools. The target population at the school level was defined as regular public schools,⁴ including public charter schools, and private schools in the 50 states and the District of Columbia that provided instruction in both the 9th and 11th grades. HSLs:09 base-year school and student samples are nationally representative and state representative (for public schools) for each of 10 states (California, Florida, Georgia, Michigan, North Carolina, Ohio, Pennsylvania, Tennessee, Texas, and Washington).

The target population of students included all ninth-grade students who attended study-eligible schools in the fall 2009 term. In the second stage of sampling, about 27 students per school were randomly selected from school-provided enrollment rosters, and 25,206 of the selected students were determined to be eligible in the base year.⁵ The sample for the current data collection, PEAR, includes any students who participated in the base year or the first follow-up, as well as those deemed in-scope (88 cases) for the 2013 update, for a total of 25,123 eligible cohort members. For detailed information on the sample design of each data collection round, see:

- *High School Longitudinal Study of 2009 (HSLs:09) Base-Year Data File Documentation* (Ingels et al. 2011)
- *High School Longitudinal Study of 2009 (HSLs:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013)
- *High School Longitudinal Study of 2009 (HSLs:09) 2013 Update and High School Transcript Data File Documentation* (Ingels et al. 2015)
- *High School Longitudinal Study of 2009 (HSLs:09) Base-Year to Second Follow-Up Data File Documentation* (Duprey et al. 2018)
- *High School Longitudinal Study of 2009 (HSLs:09) Postsecondary Education Transcript Study and Student Financial Aid Records Data File Documentation* (Duprey et al. 2020)

In the PEAR round of data collection, some 70 percent of the unweighted HSLs:09 sample members were classified as having enrolled in postsecondary education by June 30, 2021, and an additional 22 percent had no known evidence of postsecondary enrollment.⁶ A small percentage of the HSLs:09 sample members were nonrespondents (1 percent) due to study withdrawal, death, or ineligibility, and an additional 7 percent were not included in PEAR due to base year and first follow-up nonresponse.

⁴ The term “regular” refers to the setting and mode of instruction. Some examples of schools not considered regular are those that offer instruction in juvenile detention centers, schools that instruct only special education students, and schools where all of the students may be homeschooled or where a mix of instructional modes is used (e.g., some students are homeschooled, some receive remote instruction, and some are in a common physical location).

⁵ Sample members were classified as study ineligible if they were not in ninth grade during the base-year data collection, they were not enrolled at the sampled high school during the base year, or they were foreign exchange students. Study eligibility was confirmed during each round for sample members who had not yet been interviewed.

⁶ Students were considered to have no known evidence of postsecondary enrollment if they (1) indicated they had never enrolled in postsecondary education in the second follow-up survey and had no subsequent evidence of postsecondary enrollment in the administrative collections (PETS-SR or PEAR), or (2) had no evidence of postsecondary enrollment in the second follow-up survey and the administrative collections.

B.4 Response Rates

Table B-1 provides a summary of the weighted response rates for each round of data collection. Further details may be found in the *High School Longitudinal Study of 2009 (HSLs:09) Postsecondary Administrative Records Collection Data File Documentation* (Rogers et al. forthcoming).

Table B-1. Summary of HSLs:09 response rates by data collection round and instrument

Data collection round	Instrument	Eligible students	Respondents	Weighted response rate ¹
Base year	Student questionnaire	25,206	21,444	85.7
	Student assessment	25,206	20,781	83.0
	Parent questionnaire ²	25,206	16,995	67.5
	School administrator ²	25,206	23,800	94.5
	School counselor ²	25,206	22,790	90.0
	Math teacher questionnaire ²	23,621	17,882	71.9
	Science teacher questionnaire ²	22,597	16,269	70.2
First follow-up	Student questionnaire	25,184	20,594	82.0
	Student assessment	25,184	18,507	73.0
	Parent questionnaire ³	11,952	8,651	72.5
2013 update	Questionnaire	25,168	18,558	73.1
High school transcript	High school transcripts	25,167	21,928	87.7
Second follow-up	Questionnaire	25,123	17,335	67.9
Postsecondary Education Transcript Study and Student Financial Aid Records (PETS-SR)	Postsecondary transcripts ⁴	17,338	13,160	71.2
	Student aid records ⁵	17,230	8,688	48.7
Postsecondary Education Administrative Records (PEAR)	Postsecondary status determined	25,123	23,234	92.9
	Postsecondary administrative records	17,668	15,608	88.8

¹ All weighted response rates are calculated with the student base weight.

² Note that in *High School Longitudinal Study of 2009 (HSLs:09) 2013 Update and High School Transcript Study: A First Look at Fall 2009 Ninth-Graders in 2013* (Dalton, Ingels, and Fritch 2018), weighted response rates were calculated using the analytic weight, rather than the student base weight, for these five instruments. Therefore, for these five instruments, the counts of eligible and responding sample members and weighted response rates reported here differ from those reported in the 2013 Update First Look report.

³ A subsample of parents was selected to receive the parent survey in the first follow-up. Further details on the parent subsample design are provided in section 3.3.4 of the *High School Longitudinal Study of 2009 (HSLs:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013).

⁴ Weighted response rates were calculated using the student base weight adjusted for unknown eligibility with respect to PETS.

⁵ Weighted response rates were calculated using the student base weight adjusted for unknown eligibility with respect to SR.

SOURCE: U.S. Department of Education, National Center for Education Statistics, High School Longitudinal Study of 2009 (HSLs:09), Base Year, First Follow-Up, 2013 Update, High School Transcript Study, Second Follow-Up, and Postsecondary Education Transcript Study and Student Financial Aid Records Data Collection, and Postsecondary Education Administrative Records.

B.5 Weighting

Analysis weights are used in combination with software that accounts for the HSLs:09 complex survey design to produce estimates for the target population with appropriate standard errors.

Estimates in this report were weighted using W6PEAR, which allows for generalization to the U.S. population of ninth-graders in fall 2009 who were attending schools with both a 9th and an 11th grade and who were ever enrolled in a postsecondary institution as of June 30, 2021. The corresponding balanced repeated replicate (BRR) weights were used to compute standard errors.

B.6 Nonresponse Bias Analysis

Twelve categorical variables were used to assess unit nonresponse bias. (Note that most of the 12 variables are derived from sampling frame data and are therefore not available in either the restricted-use or public-use files.) These 12 variables in total comprise 63 categories. For each category, estimates of bias were calculated and statistical significance tests were conducted. Nonresponse bias was estimated for each variable or category as the difference between the weighted mean (proportion) for the respondents and for the full sample, using the student base weight, adjusted for unknown eligibility where applicable. Biases were estimated both before and after applying nonresponse weight adjustments to the sampling base weight adjusted for unknown eligibility.

Appendix B of the *HSLs:09 Postsecondary Education Administrative Records Collection Data File Documentation* (Rogers et al. forthcoming) provides bias estimates for each of the 12 variables, along with their corresponding categorizations, before and after weight adjustments. Further information on the procedures for evaluating nonresponse bias and their results can be found in chapter 3 of the same report. Overall, none of the variable categories exhibited significant estimated bias after all weighting adjustments. The results of these nonresponse bias analyses suggest that there is not substantial bias in the variables examined due to nonresponse after adjusting for that nonresponse. However, it is not possible to directly assess bias in the PEAR data because these data are not available for nonrespondents. Additionally, nonnegligible biases resulted from school-level nonresponse in the base year. For more information, please see chapter 6 of *High School Longitudinal Study of 2009 (HSLs:09) Base-Year Data File Documentation* (Ingels et al. 2011).

B.7 Imputation

A set of key analytic variables was identified for item imputation for study participants who responded to PEAR. An advantage of using imputed values is the ability to use all study respondent records in an analysis (complete-case analysis), which affords more power for statistical tests. Additionally, if the imputation procedure is effective (i.e., the imputed value is equal to or close to the true value), the analysis results are likely to be less biased than those produced with incomplete data. (For more information on the benefits and techniques of imputation, see, e.g., Little and Rubin [2002].) PEAR employed statistical imputation methods similar to those used in prior rounds of data collection.

Five key analysis variables in the PEAR data were identified for single-value imputation. Stochastic methods were used to impute the missing values. Specifically, a weighted sequential hot-deck (WSHD) statistical imputation procedure (Cox 1980; Iannacchione 1982) was applied to the missing values for the five variables. The WSHD procedure replaces missing data with valid data from a donor record (i.e., item respondent) within an imputation class. In general, variables with lower item nonresponse rates were imputed earlier in the process. Additionally, indicator variables (flags) were created to allow users to easily identify the imputed cases. For a listing of the imputed variables and further information on

imputation procedures and quality checks, please see chapter 3 of the *HSLs:09 Postsecondary Education Administrative Records Collection Data File Documentation* (Rogers et al. forthcoming).

B.8 Disclosure Risk Analysis and Protections

The disclosure treatment methods used to produce the HSLs:09 PEAR restricted-use and public-use data files include variable recoding, suppression, and swapping. Swapping was applied to both the restricted-use and public-use data files, while variable suppression and recoding were used to create recoded versions of restricted-use variables that were suitable for inclusion in public-use data files.

Restricted-use variables were reviewed for their suitability for inclusion in public-use data files. Some restricted-use variables were classified as high risk, meaning they could potentially disclose participants' identities, and their values were not provided in the public-use data files; rather, versions of these variables were provided in the public-use data files in which all of their values were suppressed (i.e., set to a "data suppressed" reserve code).⁷ Other restricted-use variables were included in the public-use data files but in a recoded form such that the recoded values represented at least 30 respondents. It is important to note that as a result of this recoding, no strictly continuous variables are included in public-use data files.

B.9 Variance Estimation

The HSLs:09 sample design included stratification, disproportionate sampling within certain strata, and clustered (i.e., multistage) probability sampling. As a result of the complex sample design, statistics generated from HSLs:09 data may vary from those expected in a simple random sample of the same size.

The standard error is a measure of the estimate's precision, accounting for sampling error. Analysts can use any of several procedures to calculate estimates of sampling errors for complex samples such as HSLs:09. These procedures include both Taylor Series approximations and replication techniques (e.g., BRR), available in statistical programs such as R, Stata, SAS, SUDAAN®, AM, and WesVar. The standard errors for the estimates presented in this report were calculated using replicate weights generated with a BRR technique.

B.10 Statistical Testing

Differences between estimates were tested against the probability of a Type 1 error⁸ or significance level. When comparing estimates between categorical groups (e.g., sex, race/ethnicity), Student's *t* statistics were computed. The formula for calculating the *t* statistic was

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

where x_1 and x_2 are the estimates being compared and SE_1 and SE_2 are their corresponding standard errors. Values of *t* were compared with published tables of significance levels for two-tailed hypothesis testing. Due to the large sample size, many differences (no matter how substantively minor) are statistically significant. All differences reported are significant at the $p < .05$ level.

⁷ See section 4.4.1 of the *HSLs:09 Postsecondary Education Administrative Records Collection Data File Documentation* (Rogers et al. forthcoming) for details on reserve code values used in the PEAR data files.

⁸ A Type I error occurs when one concludes that a difference observed in a sample reflects a true difference in the population from which the sample is drawn, even when no such difference exists.

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Appendix C— Glossary of Variables

Cumulative federal Pell Grants through June 2021

X6PELLAMTCM

This variable indicates the cumulative amount of Pell Grant funds received through June 30, 2021, as reported in the National Student Loan Data System (NSLDS). NSLDS began recording annual Pell Grant amounts starting with the 1993–94 award year. Pell Grants are only awarded to undergraduates.

Cumulative high school grade point average

X3TGPATOT

This variable indicates students' high school GPA based on all courses recorded on their high school transcripts and adjusted to a 4.0 scale. In this report, this continuous variable was recoded to the following categories: lower than 2.50, 2.50–2.99, 3.00–3.49, and 3.50 or higher. Cases where X3TGPATOT=0 were excluded.

Dual enrollment status, as of June 2021

X6DUALDTFLG

This variable indicates students' dual enrollment status (i.e., enrollment in courses to earn college credit while still in high school) as of June 30, 2021. Students were classified into one of three categories to indicate whether (1) their only postsecondary enrollment was dual enrollment; (2) they had both dual enrollment and postsecondary enrollment after high school; or (3) they only had postsecondary enrollment after high school. For this report, students were considered to ever have dual enrollment if they were classified into one of the first two categories.

Ever enrolled in a graduate degree program as of June 2021

X6EVRGRDENR

This variable indicates whether the respondent was ever enrolled in a graduate degree program as of June 30, 2021.

Field of study for highest known degree attained as of June 2021

X6HIGH23MAJ

This variable indicates the field of study for the highest known degree attained as of June 30, 2021, in 23 categories, using administrative records and postsecondary education transcript data. Field of study is based on the 2010 Classification of Instructional Programs (CIP) codes. See <https://nces.ed.gov/ipeds/cipcode> for more information on the CIP. For respondents who earned more than one of the same degree or certificate, the field of the degree or certificate with the earliest attainment date is used. STEM fields include computer and information sciences; engineering and engineering technology; biological and physical sciences; science technology; mathematics; and agricultural sciences. Non-STEM fields include social sciences; psychology; humanities; history; personal and consumer services; manufacturing, construction, repair and transportation; military technology and protective services; health care fields; business; education; architecture; communications; public administration and human services; design and applied arts; law and legal studies; library science; theology and religious vocations; and general studies and other fields.

Gender identity in 2016

X4GENDERID

This variable indicates the respondent's gender identity as of the second follow-up of HSLS:09 in 2016. In the second follow-up survey, respondents were asked to identify their gender and could select all gender categories that apply, including "female;" "male;" "transgender, male-to-female;" "transgender, female-to-male;" "genderqueer or gender nonconforming, or some other gender;" or not sure. Students were categorized as female if they selected female and no other gender identity; male if they selected male and no other gender identity; or as "another gender" if they selected any of the other options or if they selected both male and female.

Highest education attained by either parent**X2PAREDU**

This variable indicates the highest level of education achieved by either parent of the sample member. It is based on data collected in the first follow-up parent questionnaire. If parent questionnaire data were missing, the variable was imputed from the base-year parent questionnaire and the first follow-up student questionnaire. For this report, the categories for “no high school credential” and “completion of a high school diploma or alternative credential” were combined into the “high school credential or lower” category. The next two categories (“certificate or diploma from a school providing occupational training” and “associate’s degree”) were combined into a “certificate or associate’s degree” category. The three highest level categories (bachelor’s degree, master’s degree, and Ph.D./MD/law/other high-level professional degree) were combined into a bachelor’s or higher degree category.

Highest known degree attained as of June 2021**X6HIGHDEG**

This variable indicates the highest degree attained as of June 30, 2021, or the enrollment status between February 2021 and June 2021 for those who did not attain a postsecondary credential, using data from administrative records and postsecondary education transcripts. Categories of degree attainment include undergraduate certificate or diploma; associate’s degree; bachelor’s degree; post-bachelor’s certificate; master’s degree; and doctoral degree. Categories for those who did not attain a credential include no degree attained, enrolled at a 4-year institution; no degree attained, enrolled at a less-than-4-year institution; and no degree attained, not enrolled. Students who only ever enrolled in postsecondary courses and not in a degree program were classified as “Not in a degree program” and were considered to have not attained a postsecondary credential.

Mathematics achievement quintile in 11th grade**X2TXMQUINT**

This variable indicates students’ achievement in algebra content and processes based on their performance during the first follow-up on the HSLs:09 mathematics assessment. The test framework covers a representative cross-section of the major domains and key processes of algebra. For more information on the design of the assessment, see chapter 2 of the *High School Longitudinal Study of 2009 (HSLs:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013).

The variable is a norm-referenced measure of achievement. The quintile score divides the weighted achievement distribution into five equal-sized groups, based on math score (X2TXMTSCOR). Quintile 1 corresponds to the lowest-achieving one-fifth of the population, and quintile 5 corresponds to the highest. For more information on the design of the assessment, the modeling of scores using item response theory, and the derivation of the mathematics quintile variable, see chapter 2 of the *High School Longitudinal Study of 2009 (HSLs:09) Base Year to First Follow-Up Data File Documentation* (Ingels et al. 2013).

Number of months between high school exit and entry into first known postsecondary institution after high school, as of June 2021**X6HS2PS1**

This variable indicates the number of months between the last date the respondent was in high school and the start date of their first known postsecondary institution attended after high school, as of June 30, 2021.

Number of stopouts in enrollment with a duration of more than 4 months**X6STOPGT4M**

This variable indicates the number of stopouts in postsecondary enrollment with a duration of more than 4 months, as of June 30, 2021. A stopout is defined as a student’s gap in enrollment (i.e., a period of nonenrollment following a period of enrollment and preceding another period of enrollment). For this report, a variable was created to indicate those who had at least one stopout with a duration of more

than 4 months. X6STOPGT4M is based on a 126-character string that represents whether a student was enrolled for each of the 126 months between January 2011 and June 2021.

Race/ethnicity

X2RACE

This variable updates the HSLs:09 base-year variable, X1RACE. It is a composite of the racial and ethnic group to which a student belongs, based on separate questions about race and Hispanic ethnicity. Race/ethnicity was based on information collected in the base-year student questionnaire; if this information was missing in that questionnaire, race/ethnicity was based on data from the school-provided sampling roster or from the base-year parent questionnaire. If race/ethnicity was missing in these base-year sources, it was taken from the first follow-up student questionnaire or, if missing in that questionnaire, was based on the race/ethnicity of biological parents from the first follow-up parent questionnaire. The categories used in this report include American Indian or Alaska Native; Black; Hispanic; Native Hawaiian or Other Pacific Islander; White; and Two or more races. All Hispanic respondents were placed in the Hispanic category regardless of race.

School control in 11th grade

X2CONTROL

The categorical variable X2CONTROL identifies the sample member's first follow-up school as being either a Public, Catholic, or Other Private School, as identified in the source data for sampling: the 2011–12 Common Core of Data (CCD) and the 2011–12 Private School Survey (PSS). This report combines Catholic and other private schools into a single category. For this report, only data for students who were in schools as of the HSLs:09 first follow-up data collection were included in this variable (see X2UNIV2B below for more information).

School locale in 11th grade

X2LOCALE

This variable characterizes the locale of the sample member's HSLs:09 first follow-up school as either City, Suburb, Town, or Rural, as indicated in the 2011–12 CCD and the 2011–12 PSS. For this report, only data for students who were in schools as of the HSLs:09 first follow-up data collection were included in this variable (see X2UNIV2B below for more information).

Status of sample member at first follow-up

X2UNIV2B

This variable is used to identify students who were in school during the HSLs:09 first follow-up data collection in 2011. The variable characterizes students into one of the following categories: in school, in grade 11; in school, not in grade 11; in school, ungraded or unknown grade; home schooled; early graduate; left school; nonrespondent; questionnaire incapable; or out of scope/deceased cases. For this report, students who were in school, regardless of grade (i.e., in grade 11, not in grade 11, or ungraded or unknown grade) were considered to be in-school students for the first follow-up.

Total family income from all sources in 2011

X2FAMINCOME

This variable indicates the sample member's family income from all sources in 2011, as reported by the HSLs:09 parent questionnaire respondent. If the information was missing from the parent questionnaire, total family income was imputed. For this report, total family income was collapsed into five categories as follows: \$35,000 or less; \$35,001 to \$55,000; \$55,001 to \$75,000; \$75,001 to \$115,000; and \$115,001 and higher.

Total federal loans borrowed for undergraduate education

X6T4XLNCM1

This variable indicates the total amount of federal loans the respondent received for undergraduate education through June 30, 2021, as reported in the National Student Loan Data System (NSLDS). This total includes Direct Stafford Subsidized and Unsubsidized Loans; Supplemental Loans for Students; and Perkins Loans. Parent PLUS Loans are not included in this total.

**Total number of transfers between postsecondary institutions as of
June 2021**

X6TFNUM

Indicates the number of times the respondent transferred between postsecondary institutions as of June 30, 2021. A transfer occurs when the respondent leaves one institution (the origin) and enrolls at another institution (the destination) for 4 or more months consecutively. A transfer is defined by the date of last enrollment at the origin school. It is not considered a transfer if the date of last enrollment at the origin school is after the start date of enrollment at the destination school. For example, if a respondent leaves school A, attends school B for a year, then returns to school A, this would not count as a transfer. Additionally, students who co-enroll in a second institution without leaving the first institution are not considered to be transfers. This transfer definition does not consider whether course credits were accepted by the destination institution. This variable considers transfers only between institutions that the student attended as an undergraduate. For this report, the number of transfers was recoded into an indicator variable identifying those who had at least one transfer as of June 30, 2021.