

Summer Melt: How Many Seniors Follow Through on Plans to Attend College? Results from the Senior Classes of 2022, 2023, and 2024

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Key Findings

- The summer melt rates were 39.7% for the class of 2022, 36.9% for the class of 2023, and 40.5% for the class of 2024.
- SDP graduates who were male, Black/African American, Hispanic/Latine, Multi-Racial/Other, English Learners, receiving special education services, or economically disadvantaged had higher summer melt rates compared to their peers.
- The odds ratio analysis found that graduates who were **male, Black/African American, Hispanic/Latine, Multi-Racial/Other, White, English Learners, and receiving special education** had higher odds of experiencing summer melt across the graduating classes of 2021-22, 2022-23, and 2023-24.

What is Summer Melt?

Summer melt refers to the phenomenon in which a high school senior's intention to attend college in the fall "melts away" during the summer. **A higher summer melt rate indicates a lower college matriculation rate.** In the School District of Philadelphia (SDP), the summer melt rate is calculated as the percentage of graduating 12th grade students who intend to go to college but do not matriculate within the first fall after graduation.¹ Using this definition, researchers from the Harvard Center for Education Policy Research estimate that the national summer melt rate is between 10-40%.²

Previous summer melt briefs by the Office of Research and Evaluation (ORE) covered the graduating classes of 2016-17 through 2020-21, and the current brief continues the analysis by looking at the classes of 2021-22 through 2023-24.³ Prior research by ORE has found that summer melt rates vary across

¹ This group includes students who intended to matriculate to a postsecondary institution immediately but also some who planned to matriculate at any point within one year of graduation.

² Castleman, B. L., Page, L. C., & Snowdon, A. L. (2013). Summer Melt Handbook: A Guide to Investigating and Responding to Summer Melt. Harvard University Center for Education Policy Research. https://hwpi.harvard.edu/files/sdp/files/sdp-summer-melt-handbook_0.pdf

³ For reports on Summer Melt for prior cohorts see: (2020-21) <https://www.philasd.org/research/2022/04/26/summer-melt-college-intentions-vs-college-enrollment-of-2021-school-district-of-philadelphia-seniors/>, (2019-20) <https://www.philasd.org/research/2021/07/06/summer-melt-college-intentions-vs-college-enrollment-of-2020-school-district-of-philadelphia-seniors/>, and (2016-17 through 2018-19) <https://www.philasd.org/research/2020/10/21/summer-melt-college-intentions-vs-college-enrollment-of-sdp-seniors-2016-17-through-2018-19/>

cohorts and by demographic groups among District high school graduates. The current brief examines patterns in summer melt rates from 2015-16 to 2023-24 and then looks more closely at characteristics of summer melt for the graduating classes of 2021-22, 2022-23, and 2023-24. This data can be helpful for guidance counselors, school leaders, and college readiness partners as they support students in completing tasks required for college matriculation.

Research Questions

Similar to previous analyses, we examined four overarching research questions in this brief.

1. What was the pattern of summer melt rates for college-intending high school graduates from 2015-16 through 2023-24?
2. Did summer melt rates differ by institution type for the classes of 2021-22 through 2023-24?
3. Did summer melt rates vary among different student demographic groups for the classes of 2021-22 through 2023-24?
4. Was there an association between student demographics and summer melt among the classes of 2021-22 through 2023-24?

Data Sources and Methods

Two sources of data were used to calculate summer melt rates: student responses on the Senior Exit Survey and matriculation data from the National Student Clearinghouse (NSC).

Senior Exit Survey

Each year, SDP administers the Senior Exit Survey to all students in grade 12. The Pennsylvania Department of Education requires that the survey include questions about students' post-high school intentions, like whether they plan to obtain additional education, seek employment, or pursue other activities after high school. SDP can also add their own questions to the survey.⁴ Seniors were included in the summer melt analysis if they responded to the Senior Exit Survey and indicated that they planned to pursue a postsecondary education.

National Student Clearinghouse (NSC) Matriculation Data

We receive college matriculation data from the NSC for every senior who graduates from an SDP school. The matriculation data includes a list of students who matriculated at a postsecondary institution within the first fall after graduating high school, along with each institution type.⁵

⁴ For more information on the Senior Exit Survey, visit <https://www.philasd.org/research/programsservices/projects/senior-exit-survey/>

⁵ Students are considered to have matriculated if they enrolled in and attended a postsecondary institution that reports information to the NSC. This data does not include charter schools. For a list of participating postsecondary institutions, visit: <https://help.studentclearinghouse.org/sths/knowledge-base/participating-enrollment-institutions/>; For more information on college enrollment by institution and sector, visit: <https://nscresearchcenter.org/stay-informed/>; For more information on SDP open data files, visit: <https://philasd.org/opendata>

Using these data sets, ORE links students' matriculation data to their Senior Exit Survey results (Table 1). We then calculate summer melt rate as the percentage of students who did not matriculate at a college out of those who indicated they planned to pursue further education.

Table 1. Count of Senior Exit Survey respondents who planned to attend and matriculated at a postsecondary education by year of graduation: 2021-22 to 2023-24

	2021-22	2022-23	2023-24
Number of students with 12 th grade status as of May 1	9,029	9,092	9,082
Of 12 th grade students, number who completed the Senior Exit Survey	6,016	6,585	6,702
Of students who completed the survey, number who indicated that they planned to pursue postsecondary education	4,755	5,257	5,328
Of students who indicated that they planned to pursue postsecondary education, number who graduated from high school	4,442	4,907	4,983
Of high school graduates who indicated they planned to pursue postsecondary education, number (and percentage) matriculated at a post-secondary institution the first fall after graduation	2,670 (60.3%)	2,918 (63.1%)	2,962 (59.5%)
Summer Melt Rate Percentage of students intending to pursue postsecondary education who did not matriculate	39.7%	36.9%	40.5%

Source: National Student Clearinghouse (NSC) college matriculation data, 2021-22 through 2023-24; Qlik Senior Exit Survey App, retrieved on April 23, 2025.

Note: Numbers reported here differ slightly from 2023-24 Senior Exit Survey District Level Report due to the date in which student records were retrieved.

Analytic Methods

Descriptive statistics were used to answer research questions 1-3. For research question 4, a statistical model called logistic regression was used to investigate the association between student demographics and summer melt rates. Logistic regression is often used when the outcome can only take on two distinct values—in this case, matriculating at college or not matriculating after intending to matriculate. The logistic regression model estimates an odds ratio for each predictor variable (i.e., student demographics). An odds ratio **greater than 1** suggests a higher likelihood of experiencing summer melt, and values **less than 1** suggest a lower likelihood of experiencing summer melt.

Interpreting the odds ratio partly depends on the type of predictor variable used. In this brief, we used categorical variables such as gender, which has two categories for this analysis (male and female).⁶ For categorical variables, the odds ratio tells us how much more likely it is for

⁶ Due to sample size, non-binary/gender non-conforming is not included as a category.

students in one group to experience summer melt compared to students in another group. For example, if the odds ratio is 2.00, and we are comparing students who are male to those who are female, then the odds ratio tells us that male students were two times more likely to experience summer melt than female students. In this brief, there were five categorical variables: gender (female and male), race/ethnicity (African/American, Asian, Hispanic/Latine, Multi-Racial/Other, and White), EL status (English Learner and non-English Learner), IEP status (receives special education services and does not receive special education services), and economic disadvantage status (economically disadvantaged and not economically disadvantaged).

Findings

RQ1: What was the pattern of summer melt rates for college-intending high school graduates from 2015-16 through 2023-24?

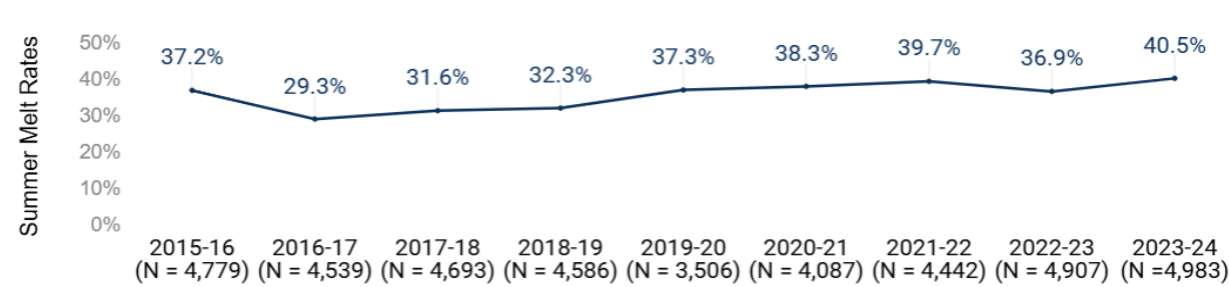
Summer melt rates increased from 2016-17 to 2023-24, with the largest year-over-year change occurring for the class of 2019-20 (a 5-percentage point increase), meaning fewer students who intended to go to college actually matriculated.

Since 2015-16, SDP summer melt rates have ranged from 29.3% to 40.5% (Figure 1). SDP summer melt rates were lowest for students who graduated in the years from 2016-17 to 2018-19 (29.3% to 32.3%). From 2018-19 to 2019-20, the summer melt rate increased 5 percentage points and remained around 37%-40% through 2023-24. The most recent graduating class (2023-24) had the highest summer melt rate, at 40.5%.

Notably, changes in the summer melt rate coincided with the Covid-19 pandemic—which may have introduced new challenges to college matriculation. The class of 2019-20 was the first cohort to graduate from high school during the pandemic. Compared to summer melt rates among seniors who graduated prior to the pandemic (2015-16 through 2018-19), summer melt rates were higher for college-intending seniors in 2019-20. Among this class, 23.5% of Senior Exit Survey respondents who intended to pursue a postsecondary education said their plans had changed because of the pandemic.⁷

⁷ For more information on the Senior Exit Survey for the class of 2019-20, please visit: <https://www.philasd.org/research/2020/10/16/2019-20-senior-exit-survey-district-level-report/>

Figure 1. Summer melt rates of college-intending seniors by graduation year: 2015-16 to 2023-24



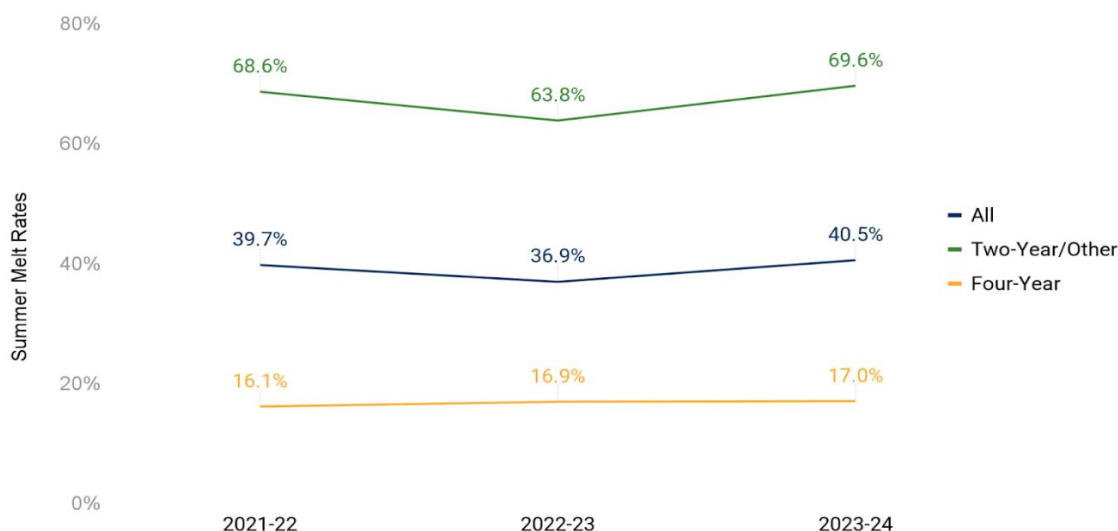
Source: National Student Clearinghouse (NSC) college matriculation data, 2015-16 through 2023-24; QlikBAM Senior Exit Survey app, retrieved March 7, 2025.
Note: The total number of students included in each school year (N) represents the number of Senior Exit Survey Respondents who graduated and intended further education after high school.

RQ2: Did summer melt rates differ by institution type for the classes of 2021-22 through 2023-24?

Students who intended to matriculate at a four-year institution had consistently lower summer melt rates compared to those who intended to matriculate at a two-year or other institution type. Summer melt rates for graduates planning to attend four-year institutions were fairly consistent, at roughly 16-17% from 2021-22 to 2023-24. In comparison, summer melt rates for graduates planning to attend two-year institutions were much higher and varied more, from roughly 64-70%.

For the SDP class of 2023-24, the summer melt rate for graduates who planned to attend two-year colleges, trade/technical schools, and non-degree granting institutions was 69.6%, while the summer melt rate for their peers planning to attend 4-year colleges was 17.0% (Figure 2). Summer melt rates were consistently higher for seniors who intended to attend two-year/other institutions than 4-year institutions across all demographic groups (see Table A1).

Figure 2. Summer Melt Rates Overall and by Intended Institution Type: 2021-22 to 2023-24



Source: National Student Clearinghouse (NSC) college matriculation data, 2021-22 through 2023-24; QlikBAM Senior Exit Survey app, retrieved March 7, 2025.

Note: Figure includes seniors who completed the Senior Exit Survey, graduated between 2021-22 to 2023-24, and intended to pursue a postsecondary education. Students reported their intended institution type (Four-Year vs Two-Year/Other Program) in the Senior Exit Survey. Two-year Institutions/Other includes two-year colleges, trade/technical schools, and non-degree granting institutions.

RQ3: Did summer melt rates vary among different student demographic groups for the classes of 2021-22 to 2023-24?

From 2021-22 to 2023-24, summer melt rates were highest for students who were male, Hispanic/Latine, English Learners, receiving special education services, or economically disadvantaged.

Among the class of 2023-24, summer melt rates were higher for male than for female students, at 45.1% and 36.4%, respectively (Table 2).⁸ In all three years, male students had consistently higher summer melt rates compared to their female peers. Among the class of 2023-24, Asian students had the lowest summer melt rate by race/ethnicity (15.9%), followed by White students (28.0%), Multi-Racial students (34.7%), Black/African American students (47.4%), and Hispanic/Latine students (50.1%). In all three years, Asian students consistently had the lowest summer melt rates, while Hispanic/Latine students had the highest. The summer melt rates for Asian, Black/African American, and Multi-Racial students dropped noticeably from 2021-22 to 2022-23, but then returned to previous rates in 2023-24, while the rates for White students increased from 2021-22 to 2022-23 and remained at that level in 2023-24.

⁸ Similar differences exist when examining additional demographic groups by gender, with male students consistently having higher rates of summer melt than their female peers across most groups (see Table A2).

Students with Individualized Education Programs (IEPs) had higher summer melt rates compared to non-IEP students, at 75.1% and 38.6%, respectively. English Learners (ELs) consistently had higher summer melt rates compared to non-EL students in all years from 2021-22 to 2023-24.

Table 2. Summer melt rates overall and by demographic groups: 2021-22 to 2023-24

Student Group	Summer Melt Rate		
	2021-22 (n = 4,442)	2022-23 (n = 4,907)	2023-24 (n = 4,983)
Overall	39.7%	36.9%	40.5%
Gender			
Female	35.7%	32.3%	36.4%
Male	44.6%	43.0%	45.1%
Race/Ethnicity			
Asian	14.5%	11.7%	15.9%
Black/African American	47.7%	42.2%	47.4%
Hispanic/Latine	50.6%	49.9%	50.1%
Multi-Racial/Other	35.8%	28.0%	34.7%
White	25.3%	29.2%	28.0%
English Learner Status			
Non-EL	37.9%	35.7%	38.9%
EL	55.7%	48.5%	51.2%
Receiving Special Education Services			
Does not have an IEP	38.1%	35.7%	38.6%
Has IEP	65.7%	58.3%	75.1%
Economic Disadvantage			
Not economically disadvantaged	32.5%	35.5%	35.4%
Economically disadvantaged	44.4%	37.7%	42.8%

Source: National Student Clearinghouse (NSC) college matriculation data, 2021-22 through 2023-24; QlikBAM Senior Exit Survey app, retrieved March 7, 2025.

Note: Table includes seniors who completed the Senior Exit Survey, graduated between 2021-22 to 2023-24, and intended to pursue a postsecondary education. Students for whom no matriculation data was available are omitted from this table. Multi-Racial/Other includes the categories American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, and Other.

RQ4: Was there an association between student demographics and summer melt among the classes of 2021-22 through 2023-24?

This is *not* a causal analysis.

The odds ratio or logistic regression indicates whether certain student groups had a higher or lower likelihood of experiencing summer melt compared to their peers. It is important to note that this analysis does not tell us whether being a member of a specific student group caused a student to experience summer melt. We cannot say the analysis is causal because our research design does not account for every potential factor that contributes to summer melt. However, regression

analyses are valuable, because by demonstrating an association between the predictors and the outcome, we can gain clarity on the factors associated with summer melt.

Students who were male, Black/African American, Hispanic/Latine, Multi-Racial/Other, White, EL, receiving special education, or economically disadvantaged had higher odds of experiencing summer melt than their peers ($p < .001$).

For each variable in the regression model, the group with the lowest summer melt value was selected as the comparison group (female, Asian, non-EL, does not have an IEP, and not economically disadvantaged). Among respondents in the class of 2023-24, college-intending male students were 70% more likely to experience summer melt than female students. This was higher than for the class of 2022-23 (65% more likely) and for the class of 2021-22 (44% more likely). White, Black/African American, Hispanic/Latine and Multi-Racial students in the class of 2023-24 were all much more likely to experience summer melt compared to Asian students (over 100% more likely in all three cohorts). Similarly, students with IEP's and English Learners had significantly higher odds of experiencing summer melt compared to their peers across the three cohorts. Economically disadvantaged students had higher odds of experiencing summer melt compared to non-economically disadvantaged students in 2021-22 (54% more likely) and 2023-24 (33% more likely), but not in 2022-23.

Table 3. Odds ratios and generalized linear model results

Predictor		Odds Ratio		
		2021-22	2022-23	2023-24
Gender	Male	1.44***	1.65***	1.70***
Race/ Ethnicity	White	2.32***	3.21***	2.51***
	Black/African American	6.55***	6.19***	5.70***
	Hispanic/Latine	5.77***	7.22***	5.21***
	Multi-Racial/Other	3.82***	3.05***	3.09***
EL		2.93***	1.83***	2.03***
Has IEP		2.30***	2.05***	3.93***
Economically disadvantaged		1.54***	1.03	1.33***

Source: National Student Clearinghouse (NSC) college matriculation data, 2021-22 through 2023-24; QlikBAM Senior Exit Survey app, retrieved March 7, 2025.

Note: Class of 2021-22: (n = 4,442); Class of 2022-23 (n = 4,907); Class of 2023-24 (n = 4,983). Table includes seniors who completed the Senior Exit Survey, graduated between 2021-22 to 2023-24, and intended to pursue a postsecondary education. Students for whom no matriculation data was available are omitted from this table. Multi-Racial/Other includes the categories American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, and Other. The table includes five categorical variables: gender, race/ethnicity, EL status, IEP status, and economic disadvantage status. For the categorical variables, the comparison group is female for gender, Asian for race/ethnicity, non-EL for EL status, does not have an IEP for IEP status, and not economically disadvantaged for economic disadvantage status. *** $p < .001$

How to read this table: An odds ratio greater than 1 means a higher likelihood of melting, while below 1 means a lower likelihood of melting.

Conclusion

Our analyses presented changes in summer melt rates over time, by institution type, and by demographics. We found that the summer melt rates were 39.7% for the class of 2022, 36.9% for the class of 2023, and 40.5% for the class of 2024. Summer melt rates in those cohorts were consistently higher for students intending to attend two-year institutions compared to students intending to pursue a four-year degree. Additionally, graduates who were male, Black/African American, Hispanic/Latine, Multi-Racial/Other, English Learners, receiving special education services, or economically disadvantaged had higher odds of experiencing summer melt.

Appendix

Table A1. Summer melt rates by institution type and demographic groups

Student Group	Summer Melt Rate					
	Two-Year Institutions/Other			Four-Year Institutions		
	2021-22	2022-23	2023-24	2021-22	2022-23	2023-24
Overall	68.6%	63.8%	69.6%	16.1%	16.9%	17.0%
Gender						
Female	65.1%	59.0%	67.6%	15.4%	15.8%	16.5%
Male	72.0%	68.7%	71.2%	16.8%	18.4%	17.2%
Race/Ethnicity						
Asian	43.0%	38.9%	42.0%	5.7%	5.7%	8.3%
Black/African American	73.2%	65.9%	73.8%	23.0%	21.0%	22.9%
Hispanic/Latine	70.4%	68.3%	69.7%	19.0%	23.7%	19.5%
Multi-Racial/ Other	69.6%	47.4%	67.4%	10.8%	15.6%	11.5%
White	58.5%	61.8%	66.7%	7.9%	14.1%	9.7%
English Learner Status						
Non-EL	68.6%	64.1%	70.2%	15.3%	16.1%	16.4%
EL	68.5%	61.5%	66.8%	28.7%	28.3%	23.4%
Receiving Special Education Services						
Does not have IEP	67.4%	63.4%	68.0%	15.7%	16.3%	16.2%
Has IEP	79.7%	67.7%	88.1%	28.8%	37.6%	44.7%
Economic Disadvantage						
Not economically disadvantaged	63.3%	67.4%	68.1%	13.7%	16.2%	15.1%
Economically disadvantaged	71.2%	62.1%	70.1%	17.9%	17.4%	18.1%

Source: National Student Clearinghouse (NSC) college matriculation data, 2021-22 through 2023-24; Qlik Senior Exit Survey App, retrieved on April 25, 2025

Note: Table includes seniors who completed the Senior Exit Survey, graduated between 2021-22 to 2023-24, and intended to pursue a postsecondary education. Students for whom no matriculation data was available are omitted from this table. Multi-Racial/Other includes the categories American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, and Other. Two-year Institutions/Other includes two-year colleges, trade/technical schools, and non-degree granting institutions.

Four-Year 23-24: (n = 2,756); Two-Year 23-24: (n = 2,227)

Four-Year 22-23: (n = 2,809); Two-Year 22-23: (n = 2,098)

Four-Year: 21-22: (n = 2,442); Two-Year 21-22: (n = 2,000)

Table A2. Summer melt rates by gender and subgroups

Student Group	Summer Melt Rate					
	Female			Male		
	2021-22	2022-23	2023-24	2021-22	2022-23	2023-24
Overall	35.7%	32.3%	36.4%	44.6%	43.0%	45.1%
Race/Ethnicity						
Asian	13.7%	10.7%	14.8%	15.2%	12.7%	16.5%
Black/African American	42.9%	35.9%	41.7%	53.8%	51.7%	54.6%
Hispanic/Latine	47.1%	42.5%	45.7%	54.9%	59.4%	55.0%
Multi-Racial/Other	24.7%	28.6%	27.3%	49.3%	27.4%	39.1%
White	19.8%	26.8%	23.7%	31.5%	31.2%	32.5%
English Learner Status						
Non-EL	34.3%	31.3%	34.2%	42.5%	41.6%	44.2%
EL	50.0%	43.4%	52.2%	61.3%	53.8%	50.2%
Receiving Special Education Services						
Does not have IEP	34.7%	31.4%	35.1%	42.3%	41.5%	42.7%
Has IEP	61.4%	53.6%	70.5%	67.8%	61.3%	77.6%
Economic Disadvantage						
Not economically disadvantaged	29.3%	31.8%	31.1%	36.5%	40.0%	39.5%
Economically disadvantaged	39.9%	32.6%	38.7%	49.7%	44.7%	47.7%

Source: National Student Clearinghouse (NSC) college matriculation data, fall 2022, 2023, and 2024; School District of Philadelphia Senior Exit Survey data, 2022, 2023, and 2024.

Note: Table includes seniors who completed the Senior Exit Survey, graduated between 2021-22 to 2023-24, and intended to pursue a postsecondary education. Students for whom no matriculation data was available are omitted from this table. Multi-Racial/Other includes the categories American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, and Other.

Male 23-24: (n = 2,275); Female 23-24: (n = 2,690)

Male 22-23: (n = 2,079); Female 22-23: (n = 2,816)

Male 21-22: (n = 1,958); Female 21-22: (n = 2,474)

Table A3. Summer melt rates by economic disadvantage and subgroups

Student Group	Summer Melt Rate					
	Economically Disadvantaged			Not Economically Disadvantaged		
	2021-22	2022-23	2023-24	2021-22	2022-23	2023-24
Overall	44.4%	37.7%	42.8%	32.5%	35.5%	35.4%
Race/Ethnicity						
Asian	15.6%	12.4%	14.9%	12.5%	10.3%	19.2%
Black/African American	52.9%	44.1%	50.8%	38.5%	38.5%	38.5%
Hispanic/Latine	48.8%	46.4%	47.3%	54.0%	58.6%	56.8%
Multi-Racial/Other	37.8%	25.7%	38.7%	33.3%	32.8%	27.5%
White	36.2%	29.8%	36.5%	17.9%	28.7%	21.0%
English Learner Status						
Non-EL	43.0%	36.9%	42.1%	30.1%	33.7%	32.1%
EL	56.6%	45.0%	47.6%	54.3%	57.4%	60.0%
Receiving Special Education Services						
Does not have IEP	42.4%	36.4%	40.8%	31.8%	34.4%	34.1%
Has IEP	69.3%	57.7%	76.9%	53.3%	59.7%	69.0%

Source: National Student Clearinghouse (NSC) college matriculation data, fall 2022, 2023, and 2024; School District of Philadelphia Senior Exit Survey data, 2022, 2023, and 2024.

Note: Table includes seniors who completed the Senior Exit Survey, graduated between 2021-22 to 2023-24, and intended to pursue a postsecondary education. Students for whom no matriculation data was available are omitted from this table. Multi-Racial/Other includes the categories American Indian/Alaskan Native, Native Hawaiian/Pacific Islander, and Other.

Economically Disadv. 23-24: (n = 3,415); Non-Econ. Disadv. 23-24: (n = 1,568)

Economically Disadv. 22-23: (n = 3,156); Non-Econ. Disadv. 22-23: (n = 1,751)

Economically Disadv. 21-22: (n = 2,686); Non-Econ. Disadv. 21-22: (n = 1,756)