

RESEARCH REPORT SEPTEMBER 2022

# Student Engagement in Learning during COVID-19

## Students' Course Grades in Chicago Public Schools



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# Introduction

Students experienced life-altering changes during the COVID-19 pandemic, beginning with stay-at-home orders and school closures in March 2020. As physical school buildings remained closed, teaching and learning transitioned to remote learning in students' homes in spring 2020, and in Chicago, remained at-home throughout most of the 2020–21 school year. Schools switched to hybrid learning in spring 2021, with pre-k programs providing some in-person schooling in February, elementary grades in March, and high schools in April.

Around the country, educators, families, and students themselves raised concerns about students' ability to engage in schooling in this new reality. They also noted challenges around access to technology,<sup>1</sup> digital literacy,<sup>2</sup> consistent attendance,<sup>3</sup> and motivation,<sup>4</sup> especially for students in communities with high rates of illness, greater job risks or insecurity among parents/guardians, and other stressors that made remote learning more difficult.<sup>5</sup> Yet, there were also indications that the crisis spurred innovation and reports of some positive outcomes for at least some students through increased autonomy, less social pressure, and greater attention to students' social-emotional needs.<sup>6</sup>

Public discussion has focused on test scores as a measure of how students fared during remote learning. But many students did not take assessments in spring 2020 when the pandemic first hit, and it is not clear whether the results for those who did are comparable to earlier years, given the marked change in the context under which tests were administered.<sup>7</sup>

This brief looks at what happened to Chicago Public School (CPS) students' course grades in spring 2020 and during the 2020–21 school year as an indication of whether students were able to remain engaged in remote learning. Research conducted prior to the pandemic has shown that grades are highly predictive of future academic success, including high school graduation, college enrollment, and college persistence—and are better predictors of those educational milestones than test scores.<sup>8</sup> Grades are thought to capture much more information than test scores—such as whether students are coming to class, participating, completing assignments, and generally meeting their teachers' expectations. But whether they can be used as a reliable indicator of student engagement during remote learning is less well understood. Many teachers modified their instruction and their expectations for students' course performance during remote learning and hybrid learning. Additionally, the district implemented a new grading policy for spring 2020, which included giving an

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1 Schaeffer (2021, October 1); Herold (2020, April 10); Richards, Aspegren, & Mansfield (2021, February 4).

2 Young (2020, October 1).

3 Chang, Gee, Henessy, Alexandro, & Gopalakrishnan (2021); Veiga & Amin (2020, April 17); Santibañez & Guarino (2021).

4 Kunichoff (2020, September 14); Dorn, Hancock, Sarakatsannis & Viruleg (2021, July 27).

5 Parker, Minkin, & Bennet (2020); Kochhar (2020); Lenhoff & Singer (2021); Kogan & Lavertu (2021, February 8).

6 Abramson (2021); Bruining, Bartels, Polderman, & Pompma (2021). Li, Flynn, DeRosier, Weiser, & Austin-King (2021); Roy, et al. (2022).

7 Lewis, Kuhfeld, Ruzek, & McEachin (2021); Dorn et al. (2021, July 27); Gulek (2003); Backes & Cowan (2019); Berwick (2019, October 25); Heissel, Adam, Doleac, Figlio, & Meer (2021).

8 Allensworth, Gwynne, de la Torre, & Moore (2014); Allensworth & Easton (2007); Easton, Johnson, & Sartain (2017).

Incomplete instead of an F and a Pass instead of a lower grade, so that students' GPAs would not be adversely affected by the abrupt shift to remote learning and the overall stress caused by the pandemic (see the Appendix for additional details). But modified expectations and a new grading policy cannot change the fact that students may have had a difficult time during the tumultuous period of the COVID-19 pandemic, and their grades may reflect their experiences. If grades declined during remote learning, understanding how extensive the decline was and whether some students and schools experienced greater declines

than others can be instrumental as district officials consider strategies for addressing unfinished learning. Conversely, if some grades improved during remote learning, understanding which aspects of remote/hybrid learning were conducive to stronger student engagement in courses could be useful for building upon those improvements.

## Study Details

To discern the impact of the switch to remote learning on CPS students' grades, this brief addresses two research questions, as shown in **Table 1**:

**TABLE 1**  
Research questions and details on analyses

Research question	Analysis details
<b>1.</b> How much did students' grades in spring 2020 and spring 2021 <b>differ from grades during pre-pandemic years?</b>	We compared the <b>distribution of grades students received</b> in their courses at three time points: <ol style="list-style-type: none"> <li>1. Spring 2020, when the pandemic first hit, and learning went fully remote;</li> <li>2. Spring 2021, when most CPS students spent part time in remote learning and part time in in-person school; and</li> <li>3. Spring terms during the three years prior to the pandemic (2016-17, 2017-18 and 2018-19).</li> </ol>
<b>1A.</b> How much did <b>rates of no-credit grades</b> in spring 2020 and spring 2021 differ from rates of no-credit grades during pre-pandemic years?	We examined the proportion of grades that were for "no credit"— <b>grades that were Incompletes (only given in spring 2020) or Fs</b> —and compared at same three time points: <ol style="list-style-type: none"> <li>1. Spring 2020, when the pandemic first hit, and learning went fully remote;</li> <li>2. Spring 2021, when most CPS students spent part time in remote learning and part time in in-person school; and</li> <li>3. Spring terms during the three years prior to the pandemic (2016-17, 2017-18 and 2018-19).</li> </ol>
<b>2.</b> How much did rates of no-credit grades during remote learning/hybrid learning <b>differ by schools and by student background characteristics?</b>	We built upon the analysis in 1A and examined rates of no-credit grades for students with different background characteristics, and schools with higher percentages of student groups, including: <ul style="list-style-type: none"> <li>• race/ethnicity;</li> <li>• gender;</li> <li>• free- or reduced-price lunch status;</li> <li>• English learner status;</li> <li>• housing status; and</li> <li>• prior test scores</li> </ul> <p>We ran a parallel set of analyses examining how no-credit rates varied by student background characteristics using hierarchical linear models. These models allowed us to assess differences in no-credit rates between groups of students within the same school, vs. differences that exist across schools. The text focuses on those differences that were significant in the statistical models, but we show results mainly with descriptive figures for ease of interpretability.</p>

Additional considerations addressed by our analyses include:

### 1. Fall-to-spring changes in grades

In addition to examining how course grades changed in spring 2020 and spring 2021, compared to spring terms in previous years across all students, we also considered how course grades changed from fall 2019 to spring 2020 for individual students. Course grades had been improving in the district in the years prior to the pandemic, and were particularly strong in fall 2019, right before the pandemic, and we would have expected spring 2020 grades to be higher than prior years, based on students' performance the prior fall. To understand the immediate impact of the shift to remote learning, we compared the grade students received in each course in spring 2020 to their grade in the same course the prior semester, in fall 2019; we then compared fall-to-spring changes that occurred during the 2020 school year to fall-to-spring changes that occurred during the three years prior (2016–17, 2017–18, 2018–19). Changes in grades for all years were classified into one of four mutually exclusive groups:<sup>9</sup>

- **No-credit grade:** earning a grade of F or Incomplete in the spring
- **Lower grade or Pass:** earning a lower grade (excluding an F) in the spring than in the fall or earning a Pass in the spring
- **Same grade:** earning the same grade (excluding an F or an A) in the spring as in the fall
- **Higher grade or A:** earning a higher grade in the spring or an A

### 2. Other impacts of remote/hybrid learning

We also investigated whether the population of students enrolled in CPS was different during remote learning/hybrid learning, compared to pre-pandemic years, since the grades given out would be expected to change if the district enrolled a different percentage of students with high- or low-prior achievement. In addition, we examined whether students took fewer courses during remote learning/hybrid learning, since this could have reduced students' overall workload, making it easier to get good grades. It would also mean a decrease the breadth of students' learning opportunities. Results are referenced in the brief where relevant and are fully shown in the Appendix.

### Data

Analyses of course grades are based on a total of 379,887 students who were enrolled in district-run (non-charter) CPS schools or alternative (Options) schools in grades 4-12 at any point during a five-year period, from 2016–17 through 2020–21 and received course grades for fall and spring for at least one school year. Students enrolled in charter schools were not included in the analytic sample due to lack of access to data on their course grades. Students enrolled in special education schools were also not included, given the different educational context of these schools. Analyses were conducted separately for students in grades 4-5, students in grades 6-8, and high school students (grades 9-12). However, the patterns were similar for students in grades 4-8, so those results were combined for this brief. See the Appendix for additional details about the analytic sample and details on the supplemental analyses of school and course enrollment.

<sup>9</sup> A same grade of F was classified as a "no-credit grade," while a same grade of A was classified as a "higher grade or A." We included As together with higher grades in the final category

because students who received As in the fall could not earn a grade higher than an A in the spring.

# Key Findings

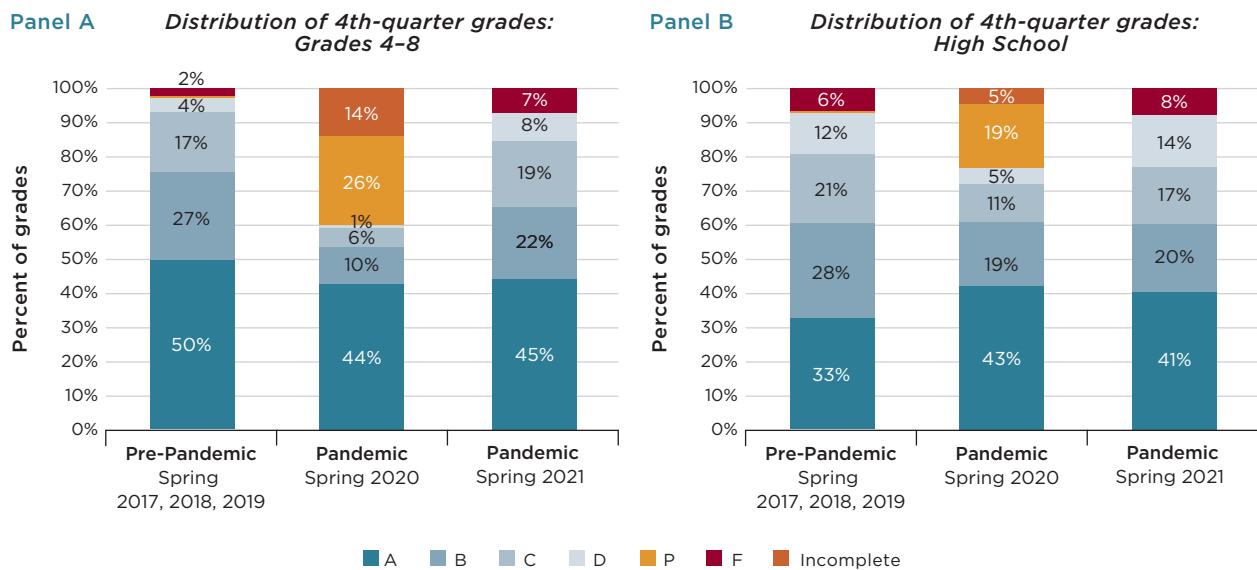
## 1. How much did students' grades received in spring 2020 and spring 2021 differ from grades received in pre-pandemic years?

Among students in grades 4-8, about 10 percent of grades were lower in the 2020-21 school year than in pre-pandemic years.

**Spring 2020:** In the three years before the start of the pandemic (2016-17, 2017-18, and 2018-19), one-half of all fourth-quarter grades earned by students in grades 4-8 were As (see Figure 1, Panel A). When the pandemic hit in spring 2020, the proportion of grades that were As decreased to 44 percent. Because of the special grading policy in place in spring 2020, it is difficult to compare grades other than As for that term—any grade that was

lower than the grade the student was earning when learning went remote was recorded as a Pass if the student passed the class or an Incomplete if they did not. However, 40 percent of grades that term were either a Pass or an Incomplete, which suggests many students experienced declining grades, relative to their grade before the pandemic hit. Given that even in non-pandemic years, some students' grades decline over the course of the year, we estimate that in grades 4-8, an additional 24 percent of students' course grades declined in spring 2020, beyond what was typical in pre-pandemic years.<sup>10</sup>

**FIGURE 1**  
Grades were lower during remote/hybrid learning in grades 4-8 but were slightly higher in high school



**Note:** Analyses of grades are based on all courses, including non-core courses, that students took during the fourth quarter/second semester of each school year. For students in grades 4-8, this includes 3,028,082 courses during the three pre-pandemic years (2017, 2018, and 2019), 1,002,575 courses in spring 2020 and 901,039 courses in spring 2021. High school students took a total of 1,350,809 courses during the pre-pandemic years, 462,068 courses in spring 2020 and 497,679 in spring 2021. Remote learning began in spring 2020 and continued in fall 2020. In spring 2021, students transitioned to hybrid learning, with some days in school and other days at home, with younger students transitioning soonest and high school students transitioning last. Component rates, as labeled, may not sum to 100 due to rounding.

<sup>10</sup> See Figure A.1 in the Appendix for additional details.

**Spring 2021:** The special grading policy was no longer in effect in the 2020–21 school year, though learning continued to be remote through most of the year, with hybrid learning (some in-person, and some remote learning) beginning in March. The percentage of grades that were As was similarly low (at 45 percent) as in spring 2020, throughout the 2020–21 school year.<sup>11</sup> There was also a decline in the percentage of Bs, relative to pre-pandemic years, from 27 percent to 22 percent of all grades. This represented a 10-point decline in the percentage of grades that were either As or Bs, from 77 percent of all grades pre-pandemic to 67 percent in spring 2021. On the other end of the grade spectrum, there was a nine-point increase in the percent of grades that were Ds or Fs, from about 6 percent in pre-pandemic years (2 percent Fs and 4 percent Ds) to 15 percent (7 percent Fs and percent Ds) in spring 2021.

Some students in grades 4–8 also took fewer courses during the 2020–21 school year, most likely due to programming challenges that occurred as a result of staff absences and vacancies in many elementary schools. Students were graded on an average of nearly one fewer course or standard in spring 2021 than typical in previous years (eight class grades instead of nine). The reduction in courses was largest among non-core courses, such as physical education, art, and music, etc., suggesting that some schools were not able to offer programming for all of the courses students would normally take. The fact that students took fewer courses in spring 2021 could have contributed to lower grades in that term; however, the impact is likely to be small given that the reduction only involved one course, on average. See the Appendix for additional details.

### High school grades improved in spring 2020, compared to pre-pandemic years, and remained about as high during the 2020–21 school year.

At the high school level, grades improved during the pandemic (see **Figure 1, Panel B**). Pre-pandemic, one-third of all high school course grades (33 percent) were As, but in spring 2020, this increased to 43 percent. Most of the improvement in high school course grades occurred among students who had been earning Bs in the fall, before the pandemic hit, who became more likely to end the year with an As than students in prior years who had been getting Bs in the fall term. The proportion of grades that represent students not meeting expectations to the point of not getting credit for the course dropped slightly across the two periods: 6 percent of grades in pre-pandemic years were Fs, while 5 percent were Incompletes in spring 2020.

High school grades continued to be stronger in the 2020–21 school year than in pre-pandemic years, although there were signs that some additional students were struggling at the end of the year. In spring 2021, 41 percent of high school grades recorded as As in spring 2021, which was much higher than in pre-pandemic years (33 percent) and similar to spring 2020 (43 percent). But there was also a slight rise in the percentage of grades that were Fs, relative to pre-pandemic years, from 6 to 8 percent of grades being Fs. The increases in Fs did not occur until the spring term; in fall 2020 (not shown), the percentage of grades that were As was high (43 percent) while the percentage of grades that were Fs was the same as in fall 2019 (6 percent). High school students enrolled in about the same number of classes during remote learning as in pre-pandemic years, an average of six classes per semester.

<sup>11</sup> The distribution of fall 2020 grades was similar to those shown in spring 2021.

<sup>12</sup> Nine courses may seem like a large number, but students in grades 4–8 receive separate grades for four English-language arts standards (i.e., listening, speaking, reading, and writing standards).

# 1A. To what extent were students unable to complete coursework under remote learning, receiving grades of F or Incomplete?

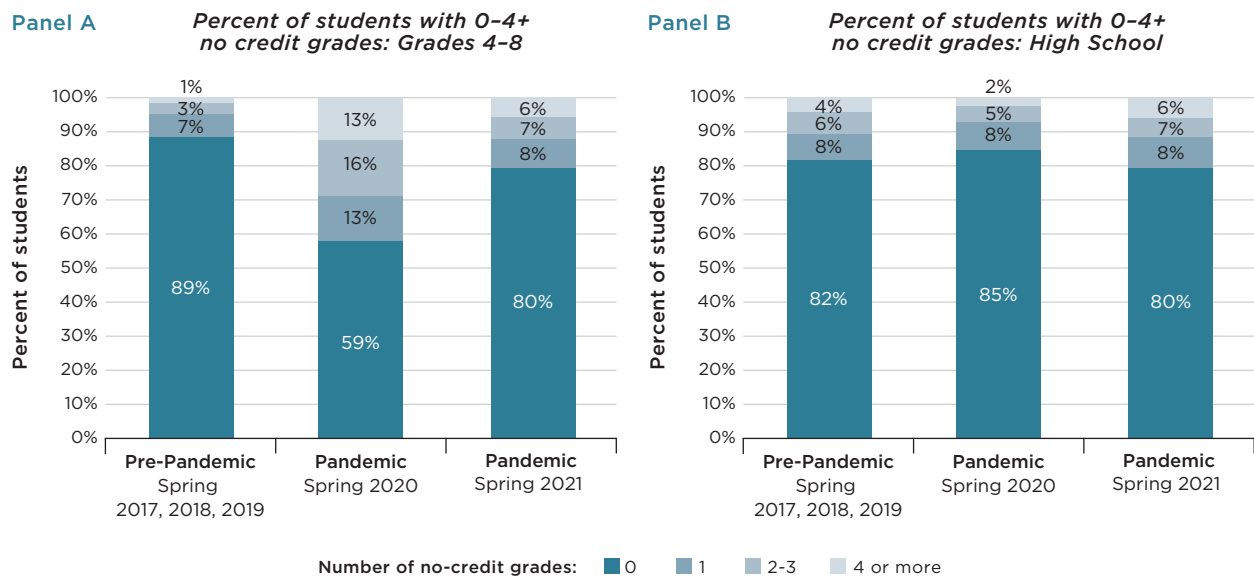
Students in grades 4-8 were much more likely to receive a no-credit grade than in pre-pandemic years.

The typical student in grades 4-8 received nine course grades each term in pre-pandemic years, and it was rare for students to receive an F in any of those classes.<sup>12</sup> The vast majority of students (89 percent) experienced no failures in any of their classes in pre-pandemic years, 7 percent of students received an F in one class, and 4 percent received more than one F (see Figure 2, Panel A). In spring 2020, students could not receive Fs, but they received an Incomplete if they could not meet course expectations. Forty-one percent of students in grades 4-8 received at least one Incomplete grade that term, which meant there was a decline of 30 percentage points in students who completed and earned credits for all of their classes (from 89 percent to 59 percent). Furthermore, 13 percent of students received an Incomplete grade in four or more classes, which is about one-half or more of their courses, while almost no students failed that many classes prior to the pandemic. The shift to remote learning made it more

difficult for students at all prior achievement levels to complete their classes. In fact, the increase in no-credit grades in spring 2020 was higher for students who had been earning As and Bs before the pandemic than it was for students earning Fs (see the box titled *Rates of no-credit grades were higher for all students in spring 2020, including students who earned high grades just prior to the pandemic in fall 2019 on p.7* for additional details).

The proportion of passing grades (As, Bs, Cs, Ds and Ps) rebounded in the 2020–21 school year for students in grades 4-8 but were still lower than in pre-pandemic years, with 80 percent of students passing all of their classes, compared to 89 percent in prior years. Thus, an additional 9 percent of students received at least one failing grade in spring 2021. Students in grades 4-8 who failed one or more courses in spring 2020 were more than twice as likely to fail one or more courses in spring 2021 than students who passed all their courses during the first term of remote learning. Overall, 11,892 students (14 percent of students enrolled

**FIGURE 2**  
The proportion of students in grades 4-8 who earned at least one no-credit grade was twice as high in spring 2021, vs. pre-pandemic years, and remained about the same for high school students



**Note:** Analyses are based on a total of 223,096 students in grades 4-8 (Panel A) and 156,791 students in grades 9-12 who were enrolled in district-run and alternative (Options) CPS schools at any point from the 2016-17 through the 2020-21 school year and remained enrolled long enough to receive course grades for fall and spring for at least one school year. Students were categorized based on the number of no-credit grades—Fs and Incompletes—they received during the fourth quarter/second semester of each year. See the Appendix for additional details about the analytic sample. Component rates, as labeled, may not sum to 100 due to rounding.



## Rates of no-credit grades were higher for all students in spring 2020, including students who earned high grades just prior to the pandemic in fall 2019

In pre-pandemic years, virtually no students in grades 4-8 who were getting an A in a course in the fall ended up getting a no-credit grade (F or Incomplete) for the same course in the spring (see Figure A). However, in the 2019-20 school year, 12 percent of the course grades that were As in the fall ended up as grades of Incomplete for the spring term. Likewise, the rates of getting a no-credit grade rose by:

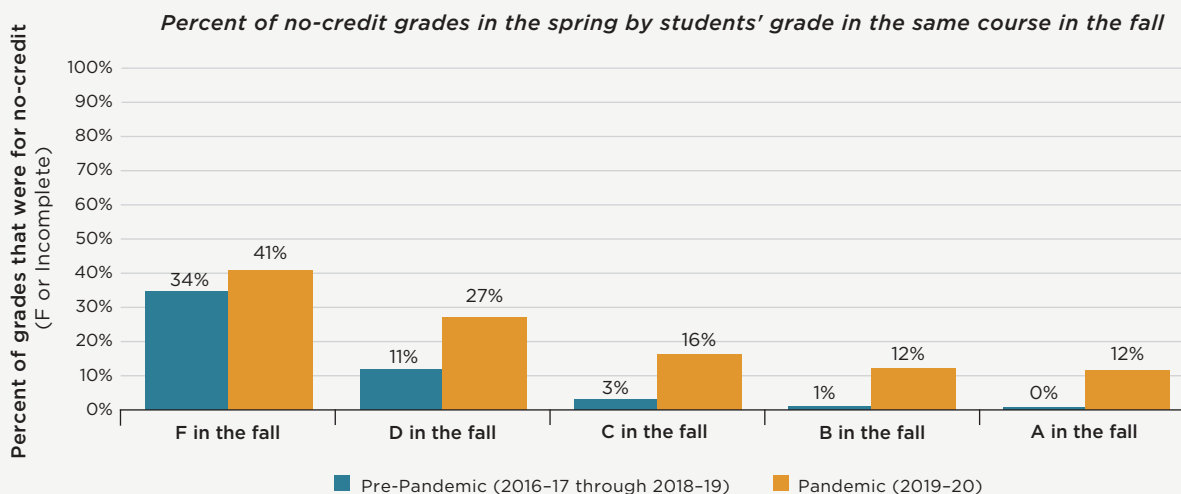
- 11 percentage points for students who had been getting Bs (from 1 percent to 12 percent),

- 13 percentage points for students who had been getting Cs (from 3 percent to 16 percent), and
- 16 percentage points for students who had been getting Ds in the fall (from 11 percent to 27 percent).

Students who had been failing in the fall term showed a more modest increase in the probability of getting a no-credit grade (of 7 percentage points, from 34 percent to 41 percent), although their risk also increased. In general, the increase in Incomplete grades with the pandemic seem to be unrelated to students' prior academic performance in their classes.

**FIGURE A**

**In grades 4-8, even students who earned high grades in the fall before the pandemic were more likely than students in prior years to receive an Incomplete in spring 2020 for the same course**



**Note:** Analyses are based on 1,002,575 courses taken by students in grades 4-8 during the 2019-20 school year and on 3,028,082 courses taken during the three years prior to the start of the pandemic.

in grades 4-8 in both terms) earned at least one no-credit grade during both spring 2020 and spring 2021, while 1,955 students (2 percent of students) earned at least four or more no-credit grades in both spring terms. **The box titled *Nearly 12,000 of almost 85,000 students in grades 4-8 earned no-credit grades in both spring 2020 and spring 2021* on p.8** has additional details.

Among high school students, there was a small increase in the percent of students who passed all their classes when learning went remote in spring

2020, rising from 82 percent in pre-pandemic years to 85 percent in spring 2020 (see Figure 2, Panel B). This dropped in spring 2021, to 80 percent. The drop was the result of a three-point increase in the percent of high school students who failed two or more courses in spring 2021, compared to pre-pandemic years (a total of 13 percent in spring 2021, compared to a total of 10 percent in spring 2020). While a small number, this 2-percentage point increase indicates substantial struggle for a specific group of high school students specifically associated with the pandemic.

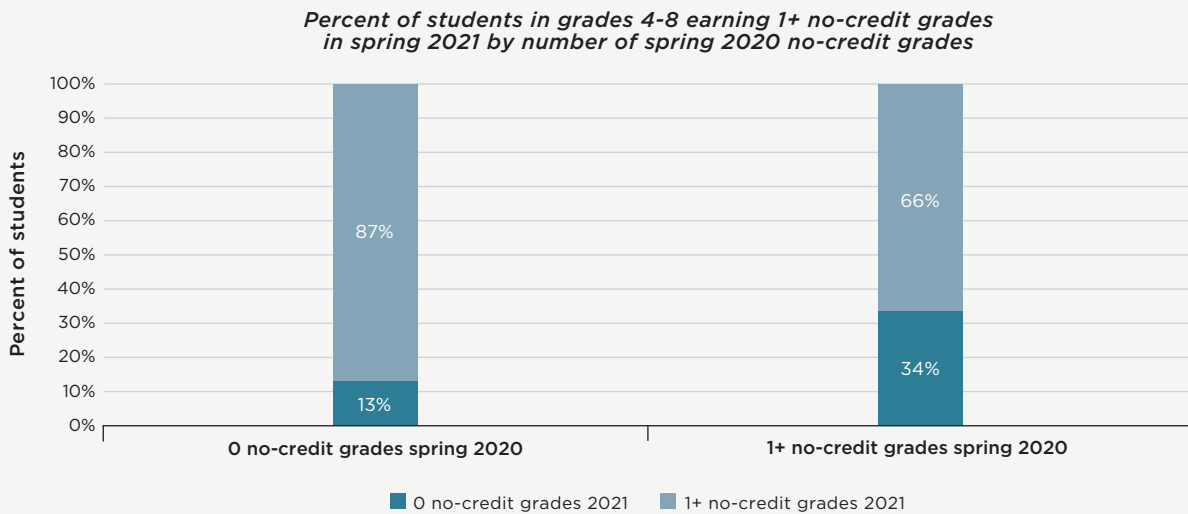
## Nearly 12,000 students of almost 85,000 students in grades 4-8 earned no-credit grades in both spring 2020 and spring 2021

By spring 2021, many fewer students in grades 4-8 were failing classes. But students who earned at least one no-credit grade during the first term of remote learning (spring 2020) were more than twice as likely to earn at least one no-credit grade the following year, in spring 2021, compared to their peers who passed all their classes (34 percent vs. 13 percent; see Figure B).

A total of 11,892 students (14 percent of students who were in grades 4-8 in both terms) earned at least one no-credit grade during both spring terms, of which 1,955 students (2 percent of all students) earned four or more no-credit grades in both spring terms. This subgroup of students particularly struggled during the remote learning period.

**FIGURE B**

**Students in grades 4-8 who earned an Incomplete in at least one course in spring 2020 were more than twice as likely to earn at least one F in spring 2021**



**Note:** Analyses are based on 84,793 students who were in grades 4-8 during the 2019-20 and 2020-21 school years in district-run CPS elementary schools. Students were categorized based on the number of no-credit grades (Fs or Incompletes) earned in the fourth quarter of both years.

## 2. How much did rates of no-credit grades differ by school and by student background characteristics?

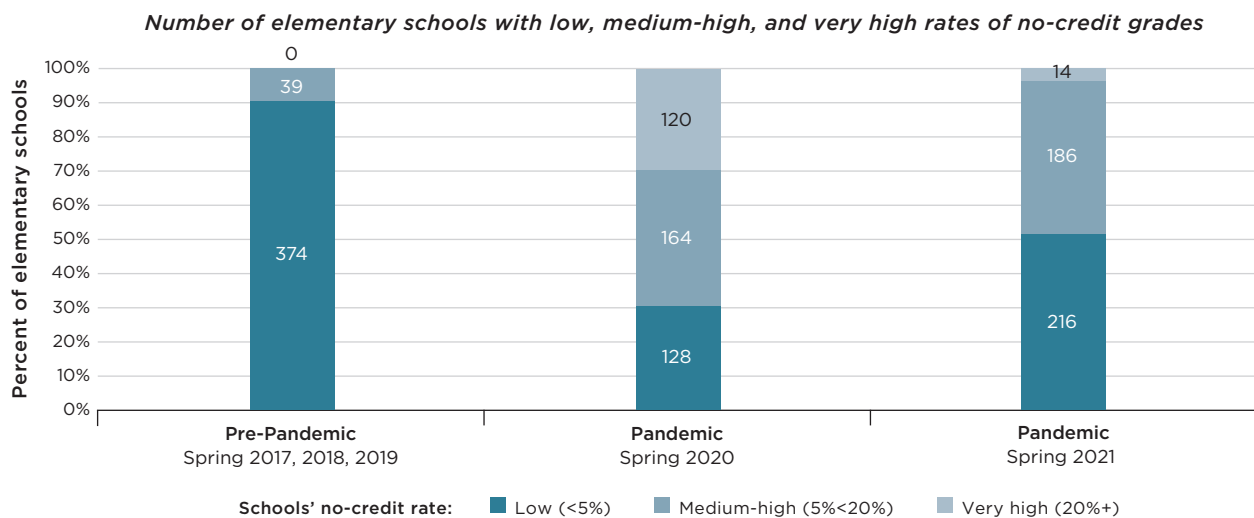
The school students attended mattered considerably for no-credit rates in grades 4-8.

Prior to the pandemic, it was rare for more than 5 percent of the grades given in elementary schools to be no-credit grades (Fs or Incompletes).<sup>13</sup> Nearly all the elementary schools in our sample had rates that were less than 5 percent (374 schools); only 39 schools had rates that were between 5 percent and 19 percent and no schools had rates that exceeded 20 percent pre-pandemic (see Figure 3). When the pandemic hit in spring 2020, there were 120 schools (just under one-third of elementary schools) in which 20 percent or more of all course grades given were no-credit grades, and 164 schools in which 5-19 percent or more of the grades given out were no-credit grades (see Figure 3). At the same time, in nearly one-third of schools (128 schools) rates remained low, where fewer than 5 percent of grades were no-credit.

In spring 2021, there were many fewer elementary schools (14 schools) in which 20 percent or more of all grades given were for no credit, but there were still many schools (186 schools) with course failure rates above 5 percent.<sup>14</sup>

Although high school grades did not decline overall in spring 2020, there were three district-run (non-charter), non-Options high schools where 20 percent or more of the grades given in spring 2020 were no-credit grades, which was a substantial increase in no-credit grades at those schools (not shown).<sup>15</sup> In 2020–21, there were two high schools where more than 20 percent of grades given in spring 2021 were no-credit grades. At most high schools, rates of no-credit grades remained similar to pre-pandemic years in spring 2020 and during the 2020–21 school year.

**FIGURE 3**  
Elementary schools differed considerably in their rates of no-credit grades during the pandemic



**Note:** The analysis is based on 417 district-run (non-charter) CPS elementary schools that were open at any point from 2016–2017 through 2020–2021 and served students in at least one grade from grades 4-8. Schools were classified based on their no-credit rates—that is, the proportion of grades among students in grades 4-8 that were Fs or Incompletes—in pre-pandemic years, in spring 2020 and spring 2021. See the Appendix for additional details regarding the analytic sample.

<sup>13</sup> Only four elementary schools had rates of no-credit grades above 5 percent in spring 2019.

<sup>14</sup> Of these 14 schools, 10 schools had no-credit rates this high in spring 20. The relationship between a school's no credit rate in spring 2020 and spring 2021 was moderately strong, with a correlation of 0.37.

<sup>15</sup> There were also six alternative (Options) high schools where 20 percent or more of grades in spring 2020 were no-credit grades.

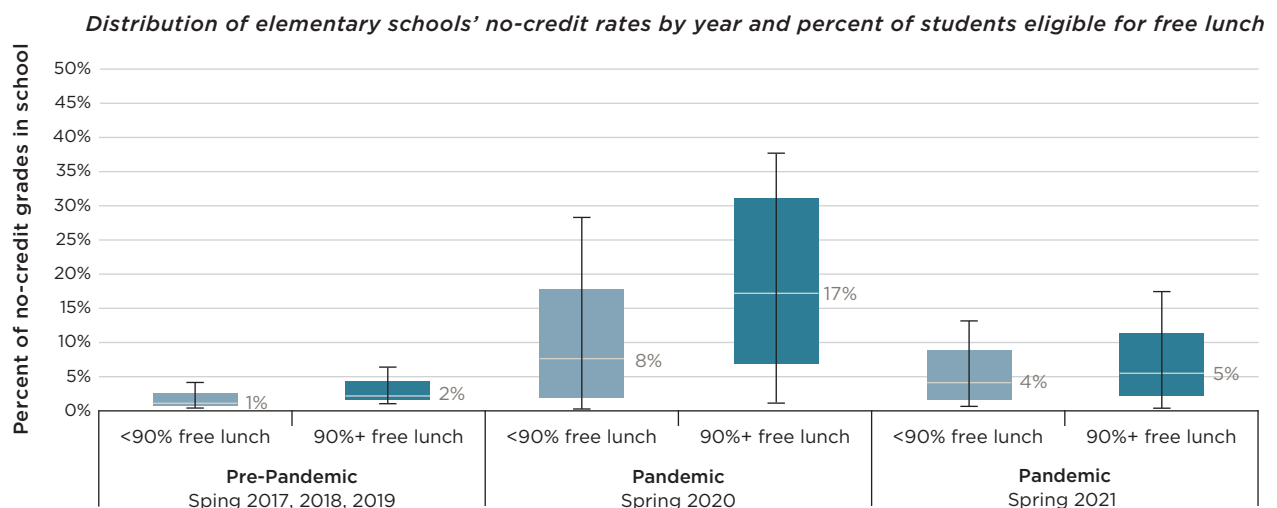
**High rates of no-credit grades in spring 2020 were more likely at elementary schools serving more disadvantaged students—but there were large differences among schools serving similar student populations.**

As shown earlier in **Figure 3**, in pre-pandemic years, few schools had high rates of no-credit grades; the median rate was 2 percent in schools where more than 90 percent of students received free lunch, and 1 percent in other schools. In spring 2020, no-credit rates increased in both types of schools, but increases were higher in schools where more than 90 percent of students were eligible for free lunch—where the median no-credit rate of 17 percent—vs. schools where fewer than 90 percent of students were eligible for free lunch—where the median

no-credit rate was 8 percent (see **Figure 4**). Schools with higher rates of no-credit grades were also more likely to have low test average test scores in 2019, and to serve more Black students (not shown in the figure).<sup>16</sup>

At the same time, there were substantial differences in the rates of no-credit grades given among schools serving similar populations of students. Among schools where over 90 percent of students were eligible for free lunch, no-credit rates ranged from 1 percent to nearly 40 percent in spring 2020 (see **middle dark blue box in Figure 4**). Although not as large in schools where fewer than 90 percent of students were eligible for free lunch, the range of no-credit rates were still considerable, from 0–28 percent.

**FIGURE 4**  
Elementary schools differed considerably in their rates of no-credit grades during the pandemic



**Note:** The analysis is based on 417 district-run (non-charter) CPS elementary schools that were open at any point from 2016–17 through 2020–21 and served students in at least one grade from grades 4–8. Schools were classified based on whether the percent of students in grades 4–8 who were eligible for free lunch was 90 percent or higher or less than 90 percent. Box plots show the distribution of no-credit rates for schools in each group from the 10th percentile to the 90th percentile. The middle line is the median. See the Appendix for additional details regarding the analytic sample.

**How to read the “box and whisker plot” shown in Figure 4**

Figure 4 shows the range of no-credit rates across CPS elementary schools in pre-pandemic years and in pandemic terms. During each time period, elementary schools have been classified into two mutually exclusive groups: schools where less than 90 percent of students were eligible for free lunch (light blue), and schools where 90 percent or more were eligible (dark blue). The median rate of no-credit grades for each group of schools is shown by the horizontal bar within each box. No-credit rates for elementary schools at the 25th percentile and the 75th percentile are indicated by the top and bottom of each box, and no-credit rates for schools in the 10th and 90th percentiles are indicated by the end of each whisker, the vertical line extending from the bottom and top of each box.

<sup>16</sup> In spring 2020, the correlations between schools' no-credit rates and student body characteristics were: 0.34 with percent of students eligible for free lunch, -0.35 with average

test scores, 0.20 with the percent of Black students enrolled in the school, and not significantly correlated with percent Latinx students.

In the 2020–21 school year, there were still relationships between no-credit rates and the percentage of students eligible for free lunch, as well as average test scores, but the relationships were smaller than in 2020, and differences by racial composition were no longer statistically significant.<sup>17</sup> While differences in no-credit rates among schools were smaller in spring 2021 than in the previous year, both for schools where 90 percent or more of the students were eligible for free lunch and also for schools where fewer than 90 percent were eligible, there were still some schools with no-credit rates above 10 percent, while many other schools had rates below 5 percent (see Figure 4). Details on statistical models comparing trends over time by student background characteristics are available in the Appendix.

**Students of all backgrounds in grades 4-8 were at higher risk of not passing their courses in spring 2020, with higher no-credit rates among students who were eligible for free or reduced-price lunch, students of color, and students who had low prior test scores.**

When the pandemic hit in spring 2020, students of all backgrounds in grades 4-8 were less able to meet course requirements and consequently more likely to earn an Incomplete. For example, among students in the most economically and socially-advantaged groups—those who were not eligible for free or reduced-priced lunch and White students—rates of no-credit grades increased by about 20 percentage points (from about 5 to 25 percent) in spring 2020 (see Figure 5, Panel A and B). But increases in rates of no-credit grades were larger for students who were eligible for free or reduced-price lunch and for students of color. Rates of no-credit grades increased from 12 to 46 percent for students eligible for free lunch and from 9 to 38 percent for students eligible for reduced-priced lunch, (see Figure 5, Panel A); no-credit rates increased from 14 to 47 percent and 11 to 43 percent for Black and Latinx students, respectively, see Figure 5, Panel B. No-credit rates declined during the 2020–21 school year for all student

groups, although students eligible for free or reduced-price lunch and students of color were still at higher risk of not passing their classes than in pre-pandemic years. At the same time, the majority of students in any student group received passing grades in all of their classes.

The increase in no-credit grades by race/ethnicity in spring 2020 was strongly related to which school students attended. When we ran statistical models that compared students' grades in spring 2020 to others in the same school, the differences by race and ethnicity and by economic status among students in the same school were small.<sup>18</sup>

**Among students in grades 4-8, differences by students' gender, English learner status, or whether they were classified by the district as living in temporary housing remained similar to pre-pandemic years.**

Changes in the rates of no-credit grades for students of different genders, English learning status, or temporary living designation were similar to the overall change in the district—any differences that existed pre-pandemic remained about the same (not shown in figures). For students with an identified disability, the change in no-credit grades depended on students' disability category; students with a learning disability had the largest increases in rates of no-credit grades and students with an emotional/behavioral disability had a decrease in rates of no-credit grades in spring 2020 compared to pre-pandemic years (not shown in figures). For example, students with a learning disability were only 4 percentage points more likely to earn a no-credit grade than students without a disability (14 percent vs. 10 percent) in pre-pandemic years but 8 percentage points more likely in spring 2020 (49 percent to 41 percent). Students with emotional disturbances were 20 percentage points more likely to earn at least one no-credit grade before the pandemic, compared to students without a learning disability, but in spring 2020, this difference was only 12 percentage points.

<sup>17</sup> Correlations between elementary schools' no-credit rates in spring 2021 with student body characteristics were weaker than in spring 2020: 0.27 with percent of students eligible for free lunch, -0.21 with average 2019 NWEA test scores, and not

significantly correlated with the percent of students who were Black or Latinx.

<sup>18</sup> See the Appendix for additional details

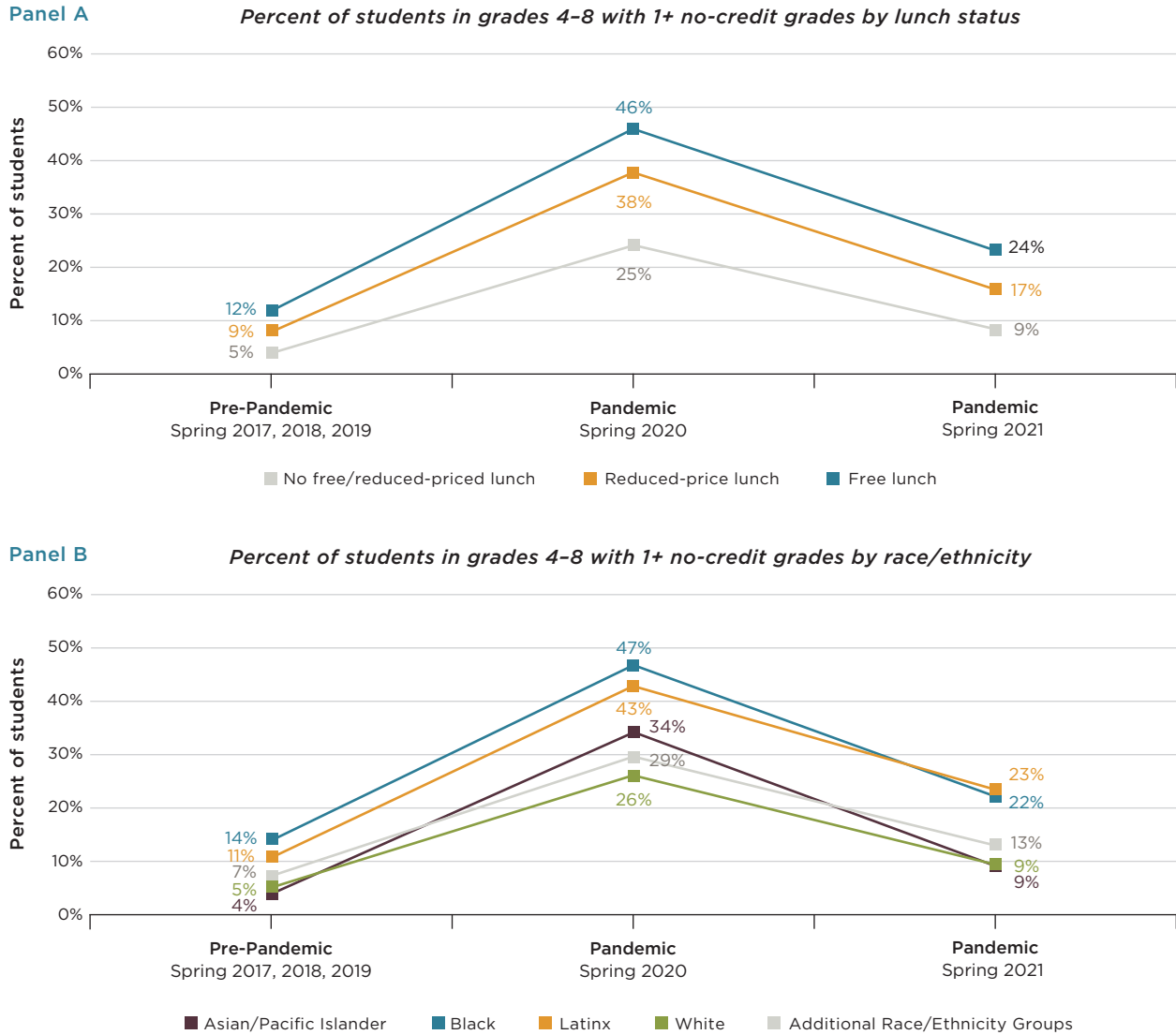
**Differences in high school grades by student background characteristics were similar to pre-pandemic years.**

There were no substantial changes in high school grades based on gender, race/ethnicity, family income, English learner status, and homeless status from

pre-pandemic years to pandemic years (not shown in figures). However, as discussed on p.9, three district-run (non-charter), non-Options high schools had higher rates of no-credit grades in both spring 2020 and spring 2021.

**FIGURE 5**

The switch to remote/hybrid learning exacerbated pre-pandemic differences in no-credit grades for students in grades 4-8



**Note:** Analyses are based on a total of 223,096 students in grades 4-8 who were enrolled in district-run (non-charter) CPS elementary schools at any point from the 2016-17 school year through the 2020-21 school year and remained enrolled long enough to receive course grades for fall and spring during at least one school year. During each of the three time periods, students were categorized based on whether they received at least one no-credit grade (F or Incomplete). The category Asian American/Pacific Islander combines three CPS data categories—Asian, Pacific Islander/Hawaiian and Asian/Pacific Islander categories—due to small number of students in the latter two categories. The category Additional Race/Ethnicity Groups combines two CPS categories—American Indian and multi-race—again, due to small numbers in both groups. See the Appendix for additional details about the analytic sample.

# Summary and Implications

Educators, families, and students were clearly committed to providing and engaging in meaningful learning in the midst of incredible challenges that began in spring 2020. Many are still exhausted from the impacts and duration of the pandemic. As school communities begin the 2022–23 school year, students’ course grades data could help identify areas for celebration, and also identify students and schools who most need continued, and in some cases substantial, support.

**1. In the midst of major disruptions in their lives, most students in grades 4-12 were able to remain engaged in school and continue meeting their teachers’ expectations.** By spring 2021, 90 percent of elementary grades and 98 percent of high school grades had returned to pre-pandemic levels or higher—a sign that many students were able to engage in learning and put considerable effort into their academic work while studying from home. Some students even earned higher grades during remote and hybrid learning, especially at the high school level. Collectively, this demonstrates the steadfast commitment and effort of students, families, teachers, school staff, principals, and district leaders.

**2. Course grades could be used to identify the group of students who may need different supports than they have received so far.** While most students’ grades suggest that they were able to engage in remote learning, course grades declined for a subset of students, especially in grades 4-8. Nearly 12,000 students in grades 4-8 failed at least one or more courses in spring 2020 and spring 2021 and nearly 2,000 students failed four or more courses in each term. These students may need intensive supports going forward; many are in schools where large

numbers of students struggled, suggesting a need for schoolwide strategies of targeted supports. And while students whose grades dropped from Bs/Cs to Cs/Ds may seem to be doing fine, they may also need additional supports to ensure they are on a path for college readiness. New efforts could be focused on students who most need different supports than they have received so far, although this may be a challenge in schools with high rates of teacher absences and departures. Schools or the district could organize data reports to identify and reach out to students find out why they are struggling, in a manner similar to the ninth-grade on-track reports and teams used in high schools.

**3. There is a need to understand why so many students received no-credit grades at particular schools and what can be learned and applied from similar schools with much lower no-credit rates.** Many of the differences in grades during the pandemic were associated with the school students attended, particularly those in communities harder hit by the health and economic tolls of the pandemic. At the same time, there were schools serving similar communities where grades showed no declines during the pandemic. CPS aims to eliminate the opportunity

gaps in educational opportunities and supports for students,<sup>19</sup> and yet schools with large proportions of students who are Black, lowest-income, and with the lowest test scores were most likely to have high no-credit rates, highlighting the importance of examining and addressing this issue in order to provide equitable educational experiences for all students. Upcoming Consortium research will examine how students' reports of their school experiences

changed during the pandemic compared to pre-pandemic years and how experiences during remote/hybrid learning differed in schools with low rates of no-credit grades compared to similar schools with high rates no-credit grades. In the meantime, these school-level differences could spark important conversations among staff within schools, and staff across Chicago, about what drove these schoolwide differences—and what is still needed today to address them.

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<sup>19</sup> See <https://www.cps.edu/about/departments/office-of-equity/> for details.



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# Appendix

This appendix provides additional details about 1) the analytic sample used in all analyses, 2) CPS’s grading policy for spring 2020, 3) fall-to-spring changes in course grades during the 2019–20 school year, 4) changes in course enrollments, 5) changes in school enrollments, and 6) the statistical models shared in this brief.

### Analytic Sample

Analyses are based on 379,887 students who were enrolled in district-run and alternative (Options) CPS in grades 4-12 at any point from 2016–17 through 2020–21 and received course grades for fall and spring for at least one school year. Students in charter schools were not included because course grades for charter school students were not available for this report. Many CPS charter schools use different student information

systems from the IMPACT system used by non-charter schools. Because each system varies in the way that it stores information about courses, credits, teachers, periods, grades, and other data, creating linkages across systems is difficult, and our data archive currently does not include records of charter school students’ course performance. Charter students represent around 15% of students in CPS during the timeframe used for our analyses. Students from special education schools were also omitted because the education context in these schools is typically quite different than in either district run or alternative schools, and grades in these schools may not be comparable to grades in non-special education schools. **Table A.1** provides details on the background characteristics of students included in the analytic sample.

**TABLE A.1**  
Demographic information for the analytic sample

Student characteristics	Number of students	Percent of sample
Students in grades 4-8	223,096	58.7%
High school students	156,791	41.3%
Male	189,951	50.0%
Female	189,935	50.0%
Latinx	181,995	48.0%
Black	129,706	34.2%
White	43,330	11.4%
Asian American/Pacific Islander	18,711	4.9%
Additional race/ethnicity groups	5,758	1.5%
Eligible for free or reduced-price lunch	301,007	79.2%
Identified disability	58,610	15.4%
English learner	49,609	13.1%
Temporary living situation	15,458	4.1%
<b>Total students</b>	<b>379,887</b>	<b>100.0%</b>

**Note:** The category Asian American/Pacific Islander combines three CPS data categories — Asian, Pacific Islander/Hawaiian and Asian/Pacific Islander — due to small number of students in the latter two categories. The category Additional Race/Ethnicity Groups combines two CPS data categories — Native American/Alaskan and Multi-race — again due to small numbers in each category. Finally, students whose race/ethnicity or gender categories were not available are also not shown due to the small number of students in this category. Historically, CPS has collected data that groups students into one of two gender categories: male and female. These gender categories and the racial categories available in our data do not accurately reflect the full spectrum of races and ethnicities embodied by CPS students. Many students do not fit into one of these categories, but we believe that there are still insights to be gained from analysis of this data. We hope in the future to be able to report data that more fully describes the identities of CPS students.

## CPS grading policy for spring 2020

CPS modified their grading policy for spring 2020 in recognition of the disruption to school-as-usual for students. The policy aimed to prevent students' academic standing (i.e., their grade point averages) from being significantly and adversely affected by the unforeseen shift to remote learning and included the following guidelines:

- Students who earned a fourth-quarter grade (or second-semester grade for high school students) that was the same or higher as their third-quarter grade received that letter grade as their final grade for that class.
- Students who earned a fourth-quarter grade that was lower than their third-quarter grade and who were regularly engaged in remote learning received a Pass as the final grade for that class.
- Students who did not engage in remote learning and did not demonstrate mastery of assignments received an Incomplete as the final grade for that class.
- Neither Incompletes nor Passes counted in the calculation of students' grade point averages.

Around 7 percent of CPS students were unable to participate in online remote learning in spring 2020, due to lack of internet access. These students were expected to complete weekly work packets for each class. They received a final grade of Pass if they completed the packets or a grade of Incomplete if they did not complete the packet and did not engage with their teacher.

## Fall-to-spring changes in grades during the 2019–20 school year

CPS first launched remote learning on April 20, 2020, and all fourth-quarter classes for the 2019–20 school year were taught online. To discern the impact of the switch to remote learning on students' grades, we compared the grade they received in each course in the fourth quarter to their grade in the same course the prior semester, during the second quarter. Fall-to-spring changes in grades were classified into one of four mutually exclusive groups.<sup>20</sup>

- **No-credit grade:** earning a grade of F or Incomplete in the spring
- **Lower grade or Pass:** earning a lower grade (excluding an F) in the spring than in the fall or earning a Pass in the spring
- **Same grade:** earning the same grade (excluding an F or an A) in the spring as in the fall
- **Higher grade or A:** earning a higher grade in the spring or an A

We compared grade changes in the 2019–20 school year to grade changes in pre-pandemic years (2016–17 to 2018–19) to understand how much grades were affected by the events of spring 2020. Among students in grades 4–8, 42 percent of course grades declined from fall 2019 to spring 2020 (see **Figure A.1, Panel A**). In pre-pandemic years, only about 18 percent of course grades declined from the fall to the spring terms. Thus, 24 percent of course grades were lower during remote learning than would have been expected, based on students' grades the prior fall. This is a large proportion of course grades, suggesting that many students struggled to meet their teachers' expectations to the same degree under remote learning as in the prior term. At the same time, not all course grades declined. Fifty-nine percent of course grades were as strong or stronger in spring 2020 as in the fall term. Among high school students, the proportion of grades that declined from fall to spring during school year 2019–20 was comparable to pre-pandemic years (27 percent vs. 28 percent; see **Figure A.1 Panel B**). However, the proportion of grades that improved from fall to spring was 11 percentage points higher during remote learning than in pre-pandemic years, 54 percent in spring 2020 compared to 43 percent during the three years prior; additional analyses indicate that the increase in higher grades was mostly among students who earned Bs in fall 2019, suggesting that these students may have benefitted from some of aspects of remote learning (e.g., fewer distractions, additional study time, etc.).

<sup>20</sup> A same grade of F was classified as a “no-credit grade,” while a same grade of A was classified as a “higher grade or A.” We included As together with higher grades in the final category

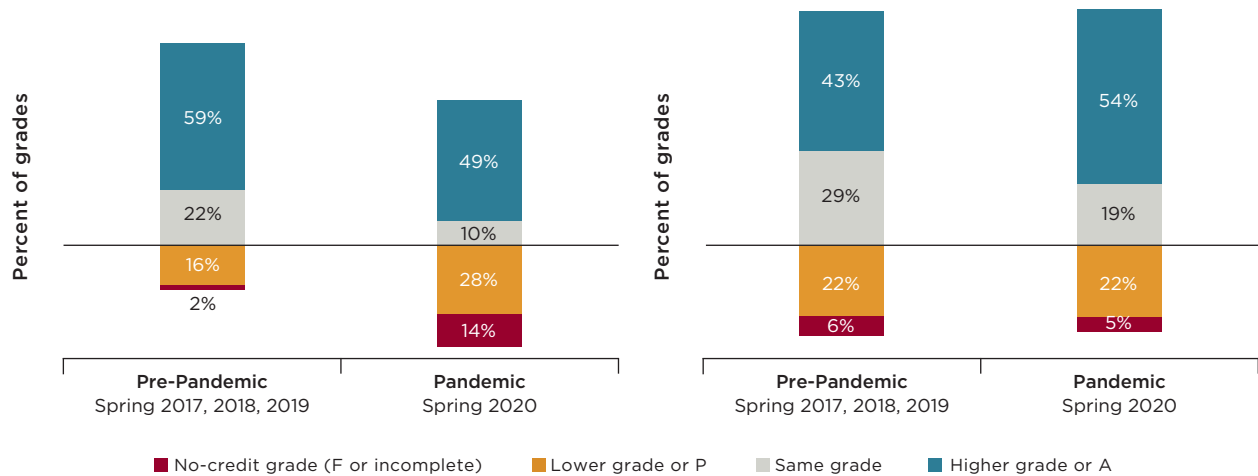
because students who received As in the fall could not earn a grade higher than an A in the spring.

**FIGURE A.1**

For students in grades 4-8, about one-quarter of grades from spring 2020 were lower than in pre-pandemic years; for high school students, around 10 percent of grades in spring 2020 were higher than in pre-pandemic years

**Panel A** *Percent of grades that declined, stayed the same or improved fall to spring: Grades 4-8*

**Panel B** *Percent of grades that declined, stayed the same or improved fall to spring: High School*



**Note:** Analyses of grades are based on all courses, including non-core courses, that students took during the fourth quarter/second semester of each school year. For students in grades 4-8, this includes 3,028,082 courses during the three pre-pandemic years (2017, 2018, and 2019), and 1,002,575 courses in spring 2020. High school students took a total of 1,350,809 courses during the pre-pandemic years and 462,068 courses in spring 2020.

### Changes in course enrollments during remote and hybrid learning

We examined whether the number of courses students took during remote and hybrid learning differed from pre-pandemic years since changes in the number and type of classes in which students are enrolled could have an impact on the grades earned during these terms. **Table A.2** shows that the average number of courses taken by students in grades 4-8 was the same during the first term of remote learning (spring 2020) as in pre-pandemic years (an average of 9 courses in both terms), but declined by nearly one full course in spring 2021, to an average of 8.1 courses. This decline

could have been due to programming challenges that occurred as a result of staff vacancies in many elementary schools. **Table A.3** shows the courses that students were scheduled to take in spring 2021 but ultimately not actually offered. Nearly three-quarters of these courses are non-core courses such as PE/Health, Technology/Civics/Career, or Art/Music/Dance/Theatre. Course enrollments for high school students showed modest increases over time, increasing from an average of 6.5 courses in pre-pandemic years to 6.6 courses in spring 2020 and 6.8 courses in spring 2021 and there were no apparent programmatic challenges in offering certain kinds of courses.

**TABLE A.2**

Average course enrollment by grade level and time period

Grade level	Pre-pandemic (Spring 2017–Spring 2019)	Spring 2020	Spring 2021
Grades 4-8	9.0	9.0	8.1
High school	6.5	6.6	6.8

**TABLE A.3**

**Courses that were unavailable to students in 4th-8th grade in spring 2021 due to programmatic challenges**

Subject	Number of affected students in grades 4-8
Art/music/dance/theater	22,251
Technology/civics/career	15,196
PE/health	13,915
English	6,155
Foreign language	3,466
Library	2,766
Homeroom	2,288
Social studies	1,937
Science	1,605
Math	1,138

**Enrollment in CPS declined in 2020-21 school year among kindergarten and pre-k students**

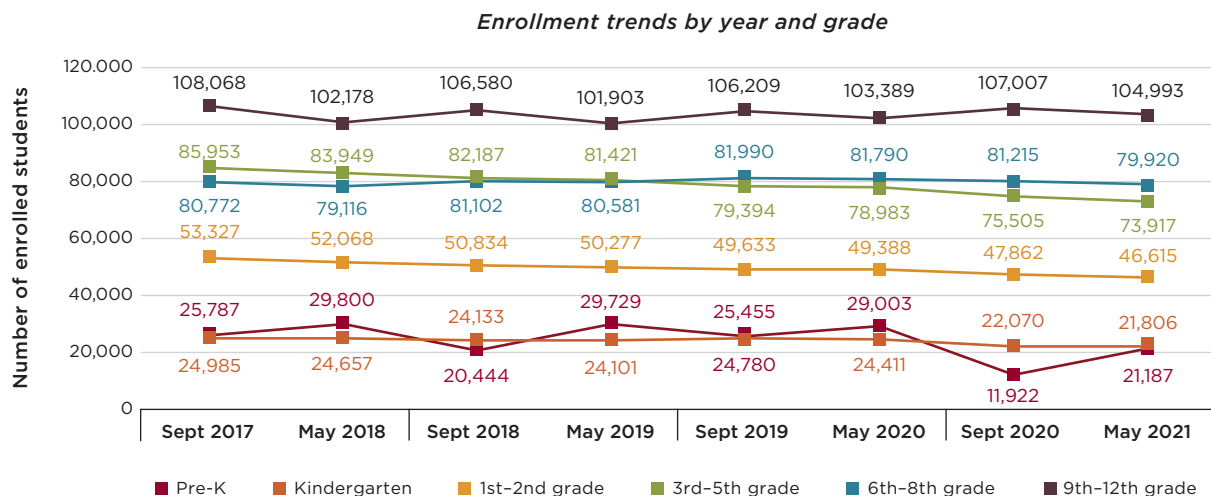
There were large declines in school enrollment among pre-k students of all races/ethnicities in fall 2020, with fewer than one-half the number of pre-k students than

the year before. By spring 2021, however, pre-k enrollment had rebounded to be slightly lower than pre-pandemic levels. Kindergarten enrollment also declined in during the 2020-21 school year, by around 10 percent, with larger declines among White students than other students. Enrollment in the primary grades declined at a similar rate as in years prior to the pandemic.

We also examined trends in enrollment in K-12, since declines could potentially influence the patterns of course grades we would expect to see, if students who were previously low- or high-achieving were more likely to leave the district. Overall, we did not see any marked changes in K-12 enrollment. Enrollment in grades 6-8 remained fairly stable through the 2020-21 school year, while enrollment in the high school grades increased in fall 2020 but dropped somewhat by spring 2021, typical for this grade level (see Figure A.2). There was a long-standing gradual decline in enrollment in grades 3-5 during pre-pandemic years, but in fall 2020 and spring 2021, the decrease was larger than typical, by about 1500 students. While this could have had some impact on changes in course grades, it is likely to be very small.

**FIGURE A.2**

**CPS enrollment in fall 2020 declined significantly for Pre-K students, moderately for students in grades 3-5, and modestly for students in grades 1-2 and grades 6-8**



### Hierarchical linear models examining changes in no-credit rates in spring 2020 and spring 2021, compared to pre-pandemic years among students in grades 4-8

We ran a series of linear probability models examining how no-credit rates for students in grades 4-8 varied over time by their background characteristics. These models allowed us to assess differences in no-credit rates between groups of students within the same school, vs. differences that exist across schools. The analyses only include students in grades 4-8, since no-credit rates did not change much for high school students. The outcome is a dichotomous variable indicating whether or not a student received at least one no-credit grade (F or “Incomplete”) in a spring term, and the model is two levels in which students are

nested within schools. We ran six different models, each examining how no-credit rates changed over time by different sets of student characteristics, including gender, race/ethnicity, free/reduced-priced lunch status, disability status, English learner status, and temporary housing status. Each level 1 model includes two indicator variables for whether the course term was spring 2020 or spring 2021 (the omitted category are pre-pandemic terms, spring 2017–19) and one or more indicator variables for student background characteristics. The level 1 intercept and the coefficients for both of the year terms are allowed to vary randomly at level 2. Coefficients for student background characteristics are fixed at level 2. As an example, the model examining the relationship between gender and earning one or more no-credit grades takes the following form:

$$\begin{aligned}
 1^+ \text{NoCreditGrades}_{ij} &= \beta_{0j} + \beta_{1j} (\text{dyearSpr20})_{ij} + \beta_{2j} (\text{dyearSpr21})_{ij} \\
 &+ \beta_{3j} (\text{Female})_{ij} + \dots + \beta_{4j} (\text{dyearSpr20} * \text{Female})_{ij} \\
 &+ \beta_{5j} (\text{dyearSpr21} * \text{Female})_{ij} + e_{ij} \\
 \beta_{0j} &= \gamma_{00} + u_{0j} \\
 \beta_{1j} &= \gamma_{10} + u_{1j} \\
 \beta_{2j} &= \gamma_{20} + u_{2j}
 \end{aligned}$$

All other level-1 coefficients fixed across schools.

Models 1 through 6 in **Table A.4** show results from each hierarchical linear analysis. In each model, the interaction terms between the year indicator variables and students’ background characteristics indicate how much pre-pandemic gaps in no-credit grades between groups of students within the same school changed during remote learning in spring 2020 or during hybrid learning spring 2021. In general, differences in the increase in no-credit grades by student characteristics were much smaller comparing students within the same schools than they were comparing students overall (not accounting for nesting within schools). For example, the overall difference in no-credit rates between Black

and White students was 12 percentage points larger in spring 2020 vs. pre-pandemic years and 4 percentage points larger in spring 2021 vs. pre-pandemic years (**see Figure 5 on p.12**). But once we compared students in the same schools, the difference was only 2 percentage points larger in spring 2020 vs. pre-pandemic years and 2 percent points larger in spring 2021 vs. pre-pandemic years. Similar patterns exist when we compare across-school differences to within-school differences for Latinx students compared to White students, and for students who were eligible for free or reduced-price lunch, compared to students who were ineligible for both.

**TABLE A.4**

**Hierarchical linear model estimates of differences in no-credit rates by student background characteristics**

Model 1		Model 2		Model 3	
Effect	Estimate (Standard Error)	Effect	Estimate (Standard Error)	Effect	Estimate (Standard Error)
Intercept	0.141*** (0.004)	Intercept	0.060*** (0.004)	Intercept	0.061*** (0.004)
dyearSpr20	0.303*** (0.015)	dyearSpr20	0.296*** (0.016)	dyearSpr20	0.270*** (0.015)
dyearSpr21	0.070*** (0.006)	dyearSpr21	0.067*** (0.007)	dyearSpr21	0.053*** (0.007)
Female	-0.068*** (0.001)	Asian	-0.022*** (0.004)	FreeLunch	0.059*** (0.002)
dyearSpr20*Female	0.024*** (0.002)	Black	0.075*** (0.003)	ReducedLunch	0.030*** (0.003)
dyearSpr21*Female	0.038*** (0.002)	Latinx	0.034*** (0.002)	dyearSpr20*FreeLunch	0.056*** (0.004)
		Add'lRace	0.023*** (0.005)	dyearSpr20*ReducedLunch	0.028*** (0.006)
		dyearSpr20*Asian	0.006 (0.007)	dyearSpr21*FreeLunch	0.046*** (0.004)
		dyearSpr20*Black	0.020*** (0.006)	dyearSpr21*ReducedLunch	0.011 (0.006)
		dyearSpr20*Latinx	0.023*** (0.005)		
		dyearSpr20*Add'lRace	0.002 (0.010)		
		dyearSpr21*Asian	-0.001 (0.007)		
		dyearSpr21*Black	0.020*** (0.006)		
		dyearSpr21*Latinx	0.032*** (0.005)		
		dyearSpr21*Add'lRace	0.013 (0.010)		

**Note:** Analyses are based on 560,505 students (of which 223,096 are unique, since many students appear in multiple years) in grades 4-8 who were enrolled in district-run (non-charter) CPS elementary schools at any point from the 2016-17 school year through the 2020-21 school year and remained enrolled long enough to receive course grades for fall and spring during at least one school year. Models 2 and 3 have slightly fewer students due to missing values for gender and race/ethnicity (560,503 students and 560,392 students respectively). During each of the three time periods, students were categorized based on whether they received at least one no-credit grade (F or Incomplete). The following symbols indicate statistical significance for a given probability level: \*\*\* p<.001, \*\*p<.01, \*p<.05.



**TABLE A.4 CONTINUED**

Hierarchical linear model estimates of differences in no-credit rates by student background characteristics

Model 4		Model 5		Model 6	
Effect	Estimate (Standard Error)	Effect	Estimate (Standard Error)	Effect	Estimate (Standard Error)
Intercept	0.100*** (0.004)	Intercept	0.105*** (0.004)	Intercept	0.105*** (0.004)
dyearSpr20	0.316*** (0.015)	dyearSpr20	0.307*** (0.015)	dyearSpr20	0.314*** (0.015)
dyearSpr21	0.101*** (0.006)	dyearSpr21	0.086*** (0.006)	dyearSpr21	0.089*** (0.006)
CognitiveDisability	-0.053*** (0.004)	EnglishLearner	-0.022*** (0.002)	TemporaryLiving	0.055*** (0.003)
EmotionalDisability	0.206*** (0.006)	dyearSpr20* EnglishLearner	0.036*** (0.003)	dyearSpr20* TemporaryLiving	0.004*** (0.007)
LearningDisability	0.039*** (0.002)	dyearSpr21* EnglishLearner	0.010*** (0.003)	dyearSpr21* TemporaryLiving	0.017*** (0.007)
OtherDisability	0.097*** (0.004)				
dyearSpr20*CognitiveDisability	-0.011 (0.007)				
dyearSpr20*EmotionalDisability	-0.128*** (0.013)				
dyearSpr20*LearningDisability	0.028*** (0.004)				
dyearSpr20*OtherDisability	-0.065*** (0.007)				
dyearSpr21*CognitiveDisability	-0.077*** (0.007)				
dyearSpr21*EmotionalDisability	-0.126*** (0.014)				
dyearSpr21*LearningDisability	-0.045*** (0.004)				
dyearSpr21*OtherDisability	-0.108*** (0.007)				

**Note:** Analyses are based on 560,505 students (of which 223,096 are unique since many students appear in multiple years) in grades 4-8 who were enrolled in district-run (non-charter) CPS elementary schools at any point from the 2016-17 school year through the 2020-21 school year and remained enrolled long enough to receive course grades for fall and spring during at least one school year. Models 2 and 3 have slightly fewer students due to missing values for gender and race/ethnicity (560,503 students and 560,392 students respectively). During each of the three time periods, students were categorized based on whether they received at least one no-credit grade (F or Incomplete). The following symbols indicate statistical significance for a given probability level: \*\*\* p<.001, \*\*p<.01, \*p<.05.

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*This report reflects the interpretation of the authors. Although the UChicago Consortium's Steering Committee provided technical advice, no formal endorsement by these individuals, organizations, or the full Consortium, should be assumed.*

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