UTAH SYSTEM OF HIGHER EDUCATION

GENERAL REPORT

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Examining the COVID-19 Pandemic's Impact on Utah Higher Education Students

As the COVID-19 pandemic spread to Utah in March 2020, the state's public colleges and universities took steps to mitigate the risk of infection to students and faculty/staff. Utah's degree-granting institutions shifted in-person coursework online in March 2020 for the remainder of the spring 2020 term, with the goal to protect students' health and safety and that of the campus community. With this focus, institutions adjusted course offerings and utilization of space to continue to serve students in these extraordinary times. Such measures continued into the fall 2020 term.

Technical colleges could not easily shift curricula online, as most certificate programs require in-person demonstrations that competencies have been mastered. In response to the pandemic, technical colleges moved as many programs as possible to online instruction, understanding that some students may run out of independent course work that can be completed outside of a classroom or laboratory. Other programs moved to a hybrid of online and in-person instruction while following capacity, social distancing, and contact tracing guidelines. Many programs, however, were shut down in April 2020 and did not reopen until the beginning of June.

As more time passes since COVID-19's arrival in Utah, the impacts of institutional and student decisions in response to the pandemic are becoming clearer. As shown herein, student enrollment, progress, and completion trends were all affected by the colleges' and universities' COVID mitigation efforts. Data for this research comes from regular submissions provided to USHE by both degree-granting and technical institutions. For degree-granting institutions, the present study examines student outcomes over six consecutive terms: three before COVID-related quarantine (spring 2019, summer 2019, and fall 2019) and three during the COVID-19 crisis (spring 2020, summer 2020, and fall 2020). This represents 357,196 students and 2,978,758 course enrollments, providing student outcome data such as GPA and earned credits. For technical colleges, data submissions span an entire fiscal year and are not broken down into separable terms. The present study examines technical college enrollments and completions from January 2019 (15 months prior to the COVID-19-induced closure of technical colleges) through December 2021 (19 months after the resumption of in-person instruction). This represents 25,936 certificate-seeking students and 27,254 program enrollment records.

Of students at degree-granting institutions, 52.1% identified as female and 47.9% as male. The breakdown by percentage of race/ethnicity can be seen in Table 1. International and students who did not identify

their race or ethnicity were not included in analyses where demographics were used as variables. At technical colleges, students identifying as males outnumber females 55.2% to 44.8%. Technical college student races/ethnicities are also shown in Table 1.

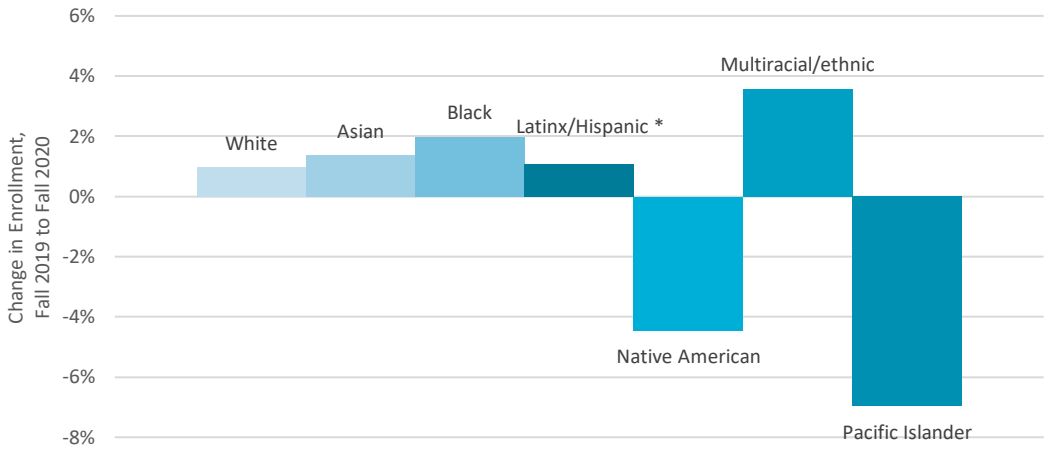
Table 1. Share of distinct student headcount, by race/ethnicity.

Racial/Ethnic Group	Degree-granting Institutions	Technical Colleges
Asian American	2.6%	1.2%
Black	1.5%	1.5%
Latinx/Hispanic	12.4%	16.4%
Native American/Alaskan Native	0.8%	1.2%
Two or More Races	3.6%	2.1%
Pacific Islander	0.8%	0.7%
White	78.3%	76.9%

Enrollment

As reported elsewhere (see here or here), the number of students enrolled in Utah's public degree-granting institutions altered little over the course of the pandemic. Overall, student headcount between fall 2019 and fall 2020 dropped only 0.2%. However, specific patterns within the data emerged upon closer inspection. Enrollment among white (1.0%), Asian American (1.5%), and Black (2.6%) students remained unchanged or increased marginally. Substantially more students who identified as multiracial enrolled (3.6%). In contrast, significantly fewer students who identified as Latinx/Hispanic (1.4%). Native American/Alaskan Native (3.7%), and Pacific Islander (7.0%) enrolled than before the pandemic.

Figure 1. Degree-granting institutions' change in enrollment from fall 2019 to fall 2020, by race/ethnicity. Asterisks represent statistically significant changes.

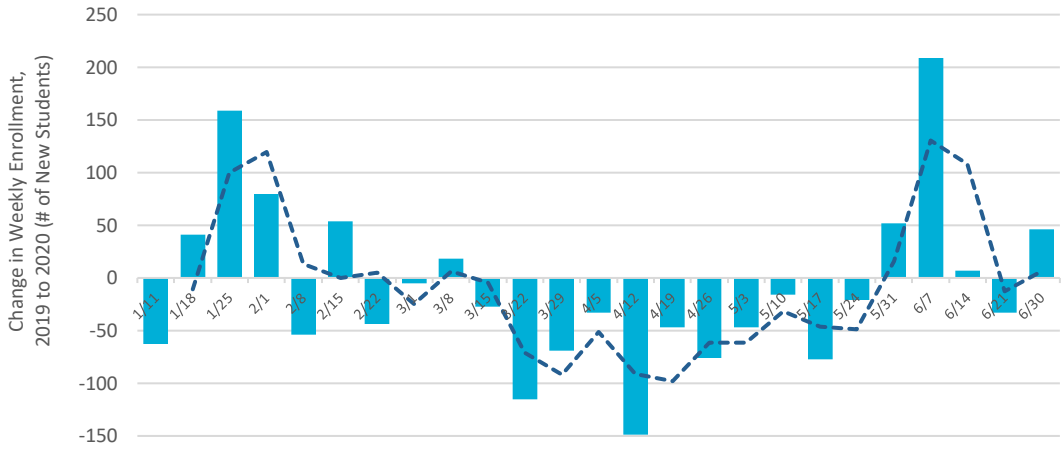


Attendance patterns differed among institutions. As seen in Figure 1, the most noticeable change was among Pacific Islander students. Fewer Pacific Islanders enrolled at USU and SUU and a lesser degree, DSU and WSU, but enrolled in greater numbers at Snow College. Further, Snow College saw increases in Asian Americans, Blacks, and multiracial populations. Fewer Native Americans enrolled at SLCC and USU, but regional institutions like WSU and SUU saw increased enrollment.

In contrast to degree-granting institutions, the overall number of students enrolled at Utah's technical colleges was greatly impacted by the pandemic. Technical colleges offer many programs in an open-entry/open-exit environment, allowing students to begin coursework at various points in the year. In response to the pandemic, technical colleges largely stopped enrolling new students during their limited shut down in April and May 2020. Even after the colleges resumed in-person learning in June, various programs operated under reduced capacities to allow for social distancing, electing to devote resources to those who were already enrolled rather than admit new students.

In FY 2020 technical colleges experienced significant growth until the pandemic arrived. As of February 1, 2020, distinct certificate-seeking headcounts were 7.5% higher than in FY 2019. Between January and March 2020, the colleges enrolled an average of 182 new certificate-seeking students each week (almost 23 students per college, per week). But as colleges began limiting new student enrollment, the growth experienced over the first nine months of the fiscal year disappeared. From the beginning of April to the end of May 2020, weekly new enrollees fell by 79% over the prior year. On average, colleges enrolled only 39 new certificate-seeking students each week (roughly 5 students per college, per week). By the end of May 2020, after two months of limited distance education instruction, technical college headcounts were up over FY 2019 by only 1.1%. Figure 2 shows the decline of weekly new enrollees in the first half of 2020 over the same weeks in 2019, highlighting the dramatic impact of the pandemic on technical college headcounts.

Figure 2. Change in weekly new 2020 enrollees over the same week in 2019. Because technical college programming may change year to year (i.e., a specific cohort may start on the first Monday in March in one year and the second Monday the following year), a two-week moving average (the dotted line) is included.



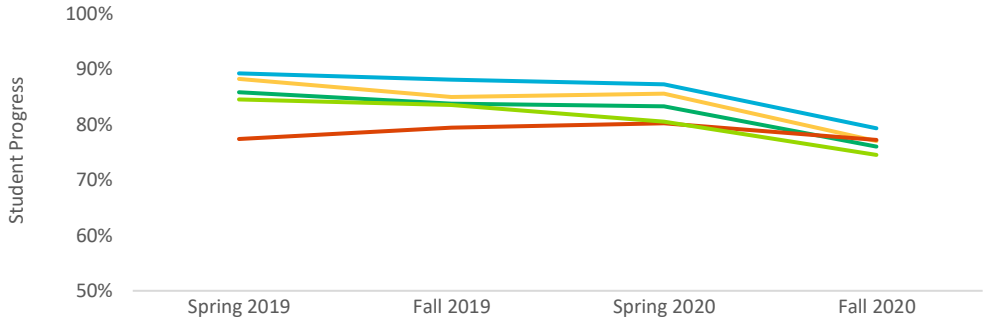
Headcounts in non-credentialed workforce training declined by even more than certificated program enrollment. Due to shifts in course offerings at certain technical colleges, headcounts in non-credentialed training were already lower through the first half of FY 2020 than FY 2019. Weekly new enrollments

between January and March 2020 averaged 74.3% of what was observed during the same weeks in FY 2019. But as the pandemic arrived in Utah, technical colleges stopped most instruction in non-certificated programs, and weekly new enrollees dropped to only 11.1% of what was observed in the prior year. By the end of FY 2020, workforce training headcounts were down by 38.7% over FY 2019.

Underrepresented Student Progress

Pandemic-related disruptions at Utah colleges and universities affected students' academic progress in measurable ways. Academic progress was calculated as the ratio of earned credits to attempted credits for each student in each term enrolled at a degree-granting college or university. Thus, a student who attempted twelve credits and earned all twelve credits would show 100% progress, while a student who attempted twelve credits and earned nine would show 75% progress. Using this measure, quarantine efforts affected men and women equally; however, effects differed for students from underrepresented ethnic groups. As shown in Figure 3, Pacific Islander students were most substantially affected, while Black and Latinx student progress was also altered during the fall 2020 term.

Figure 3. Average progress of underrepresented populations at degree-granting institutions. White and Asian students approximated multiracial/ethnic students and are omitted for clarity.

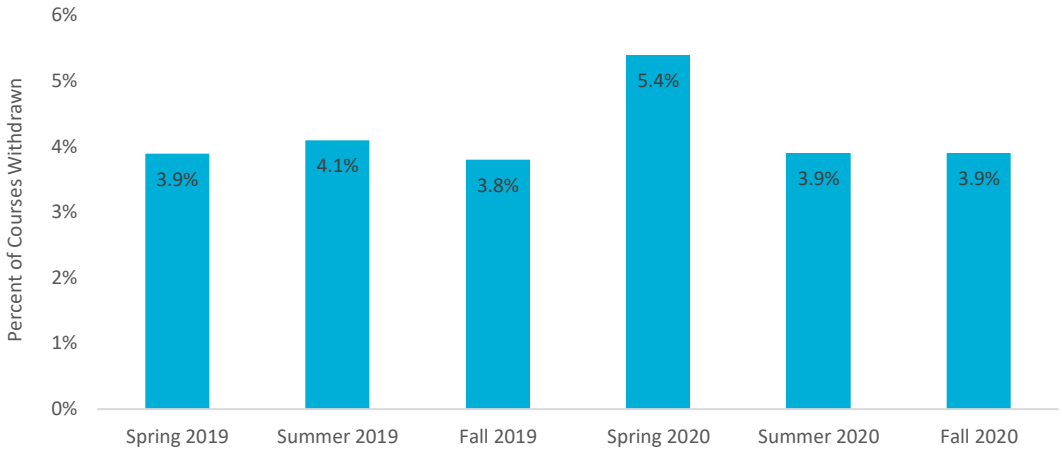


	Spring 2019	Fall 2019	Spring 2020	Fall 2020
Multiracial/ethnic	89.2%	88.1%	87.2%	79.3%
Latinx/Hispanic	88.2%	84.9%	85.5%	77.0%
Black	85.8%	83.7%	83.2%	76.0%
Native American	77.4%	79.4%	80.2%	77.2%
Pacific Islander	84.5%	83.5%	80.5%	74.5%

Withdrawals

The COVID-19 Pandemic resulted in a greater share of courses withdrawn during the spring 2020 term than in prior or subsequent terms. As shown in Figure 4, the overall withdrawal rate from courses offered by Utah's public degree-granting institutions increased by almost 1.5 percentage points above the average observed in prior and subsequent terms. This represents an additional 10,000 course withdrawals in spring 2020 above what was observed the previous spring term.

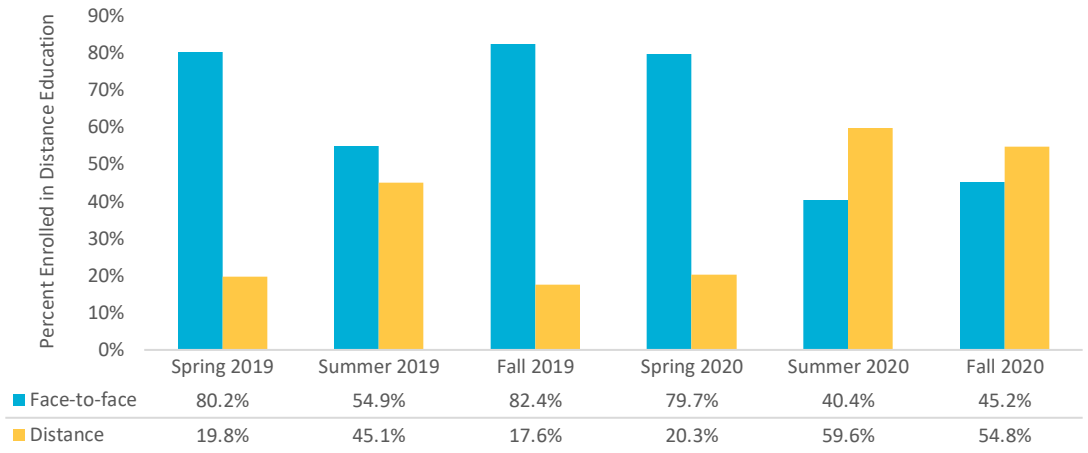
Figure 4. Percent of courses that are withdrawn at degree-granting institutions, by term.



The number of course enrollments in summer 2020 increased by 6.2% over summer 2019. This increase equaled almost 10,000 enrollments. In addition, course withdrawals for this term dropped by 0.2% from the prior year. Course enrollment in fall 2020 was close to that of the fall 2019 term. It appears that many students who withdrew from courses in the spring of 2020—as COVID-19 quarantine was being implemented—re-enrolled the following summer or fall. This strategy helped students to stay on track in their academic progress.

Delivery

Figure 5. Percent of degree-granting institutions' enrollment, by instruction delivery method.



In March 2020, degree-granting institutions started to move courses online. Course delivery adjustments began immediately with more formal online structures implemented in the summer or fall. As seen in Figure 5, distance learning was more prevalent in summer terms. Forty-five percent (45.1%) of summer courses were distance education. Before quarantine, distance education would have set a record for the traditional academic year at 20.3%. During the last two terms of COVID-19 restrictions, distance education offerings exceeded 50%. The breakdown by the institution is available in Table 2. Responses to these changes differed by both gender and racial groups.

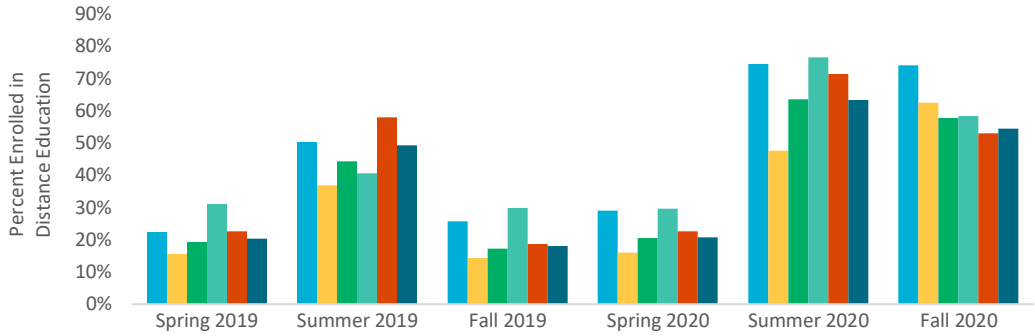
Table 2. Percent of courses offered via distance education, by degree-granting institution.

College/University	Fall 2019	Fall 2020
University of Utah	12.4%	68.2%
Utah State University	21.8%	53.9%
Weber State University	22.0%	57.6%
Southern Utah University	14.5%	37.3%
Snow College	17.4%	29.8%
Dixie State University	12.3%	19.6%
Utah Valley University	17.0%	61.9%
Salt Lake Community College	21.5%	54.8%

One in three courses women enrolled in at degree-granting institutions were distance education courses (33.0%), while men enrolled in fewer distance education courses (28.5%). Before the pandemic, white students had the lowest enrollment in distance education courses. Their highest enrollment was 49% in the summer 2019 term. In summer 2020, white student enrollment in distance education surged to 63%. By fall 2020, distance education for white students dropped to 54%.

Conversely, Black and Native American students had above-average enrollment in distance education before the COVID-19 pandemic. During quarantine, Black students' distance education enrollment remained high; they enrolled in more distance education courses than any other racial or ethnic group. Native American students moved to more face-to-face courses in fall 2020. Pacific Islander students had higher than average enrollment in distance education, but, like Native American students, their enrollment in distance education offerings dropped in fall 2020.

Figure 6. Percent enrollment in distance education courses by race/ethnicity. Multiracial/ethnic students were similar to white students and are omitted for clarity.



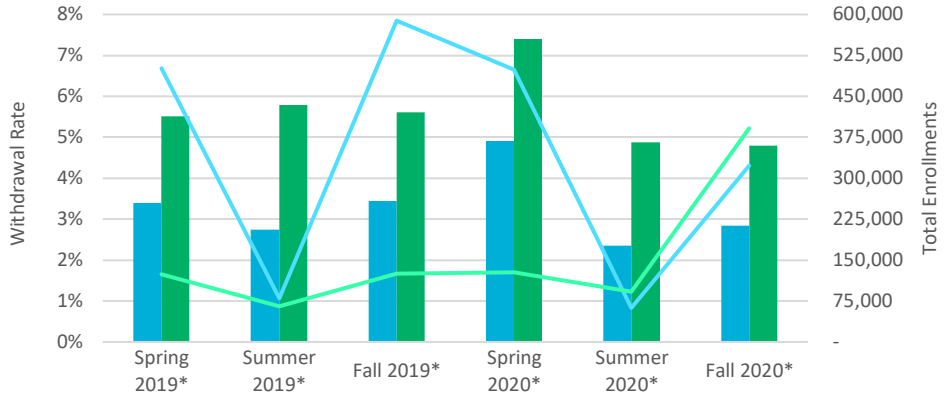
	Spring 2019	Summer 2019	Fall 2019	Spring 2020	Summer 2020	Fall 2020
Black	22%	50%	26%	29%	74%	74%
Asian	16%	37%	14%	16%	48%	62%
Latinx/Hispanic	19%	44%	17%	20%	64%	58%
Native American	31%	41%	30%	30%	76%	58%
Pacific Islander	23%	58%	19%	23%	71%	53%
White	20%	49%	18%	21%	63%	54%

Technical colleges did not see a significant shift from in-person instruction to distance education, owing to the difficulty in providing competency-based technical education online. In FY 2020, 12.3% of technical

college membership hours were provided via distance education, which is only a slight increase from the prior three years' average of 11.9%.

Distance Delivery and Withdrawal

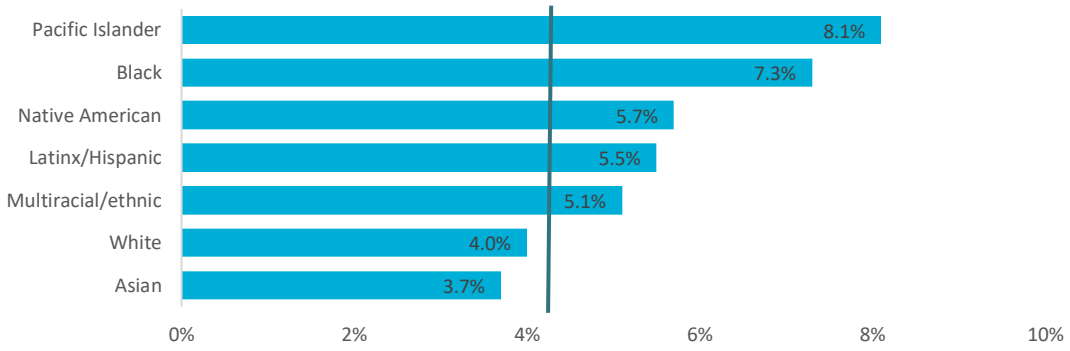
Figure 7. Percent of degree-granting institutions' withdrawals by delivery type compared to the total number of enrollments. The asterisk represents statistical significance between delivery type and across terms. Because of the breakdown by delivery type, withdrawal percentages appear differently than the total percent of withdrawals seen in Figure 4.



	Spring 2019*	Summer 2019*	Fall 2019*	Spring 2020*	Summer 2020*	Fall 2020*
Face-to-Face Withdrawals	3.4%	2.7%	3.4%	4.9%	2.4%	2.8%
Distance Withdrawals	5.5%	5.8%	5.6%	7.4%	4.9%	4.8%
Face-to-Face Total	501,235	79,640	588,581	498,700	62,375	323,297
Distance Total	123,394	65,344	125,704	127,070	92,177	391,241

To allow students to continue their education but still maintain safety on campuses, degree-granting institutions moved more courses online or to another form of distance delivery such as remote virtual (i.e. video-conferencing) classes. As seen in Figure 7, summer 2020 and fall 2020 distance courses surpassed face-to-face. While students withdrew from fewer courses overall in the last two terms, distance-delivery courses still had higher withdrawal rates than the traditional in-person, courses.

Figure 8. Degree-granting institutions' withdrawal rates, by race/ethnicity. The green line represents the mean withdrawal rate of 4.2%.

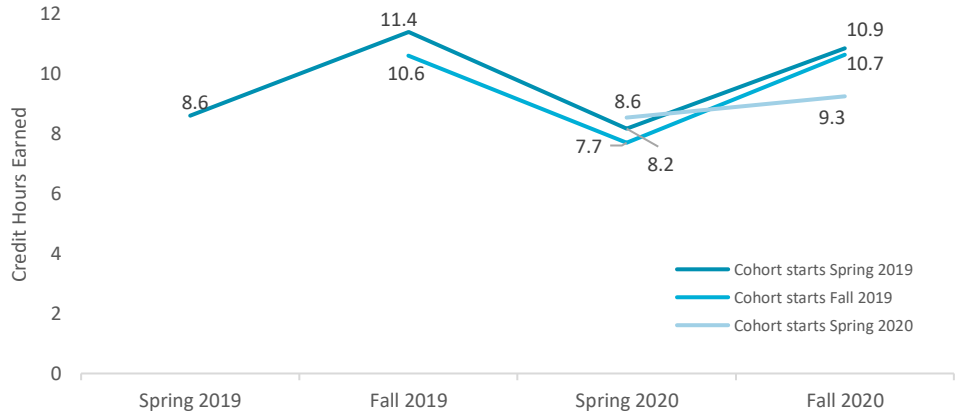


Men withdrew from more courses (4.6%) than women (3.8%). Pacific Islander students withdrew at the highest rate, while Black students' rates were slightly lower. Native American, Latinx, and multiracial/ethnic students' withdrawal rates were also above average.

Effects on Academic Achievement

To examine the impact of COVID-19 at degree-granting institutions, students were divided into three cohorts: those who began in spring 2019, fall 2019, and spring 2020. Students with more experience were excluded. Each cohort was significantly different from the others regarding credits earned, student progress, term GPAs, and withdrawal rates.

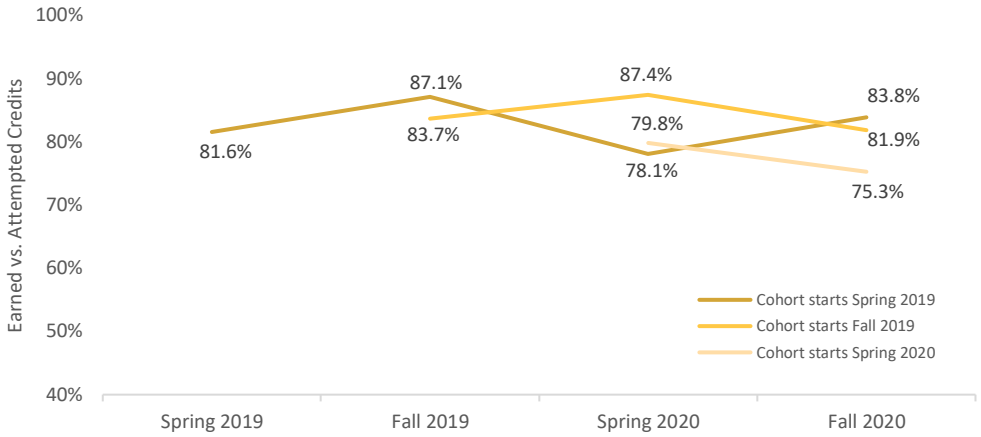
Figure 9. Average number of credits earned by degree-granting institution student cohorts.



One result of implementing quarantine in the spring 2020 term was fewer credit hours earned in that term for the two older cohorts. Improvement began in the following fall term. For those who started in fall of 2019, students paralleled the older cohort. But students who first enrolled during the spring 2020 term earned slightly more credit hours than those who enrolled before the pandemic, and their improvement in fall 2020 was not as pronounced.

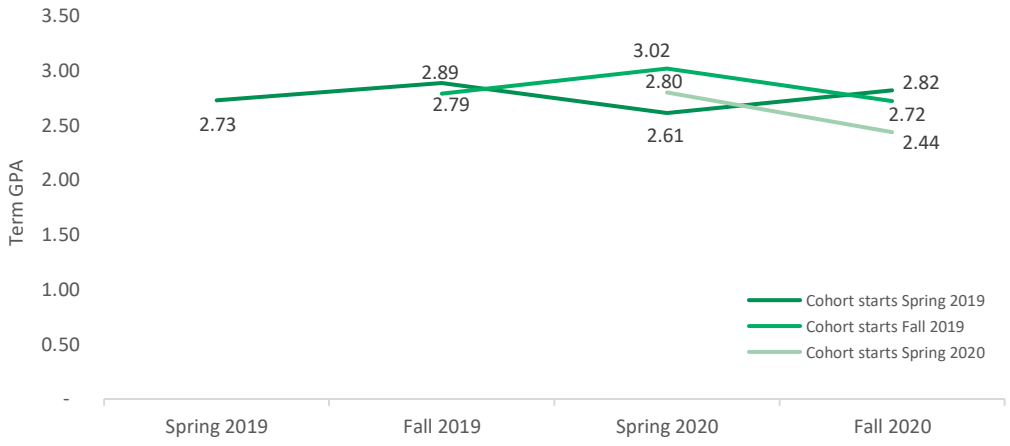
Upon considering student progress (see page 4 for definition), the spring 2019 cohort dipped only in the spring 2020 term but rebounded in the following fall term. Their rebound was not complete, though, as these students did not reach their prior achievement level. The fall 2019 cohort was the least affected and actually improved over the prior term in its ratio of credits attempted to credits earned, in spite of the shift to online instruction during the spring 2020 term. The most recent cohort did not start as strong as the other two cohorts and declined further in fall 2020. These students enrolled in fewer credit hours than the prior cohorts across both terms.

Figure 10. Earned credits divided by attempted credits for degree-granting institutions' student cohorts.



As a whole, average term GPAs remained relatively stable from the spring 2019 term through fall 2020. Each successive cohort's first-term average GPA rose, from 2.73 for students beginning in spring 2019, to 2.79 for the fall 2019 cohort, and 2.80 for the spring 2020 cohort, perhaps indicating better preparation among newer students. During spring 2020, all institutions implemented adjustments to grading policies to not disadvantage students experiencing the sudden shift to online and virtual courses. Students had the option to request changes to Pass/Fail or Credit/No Credit or withdraw from classes beyond the regular deadlines for these options. By delaying these deadlines, students were able to experience distance education for a few weeks before electing to remain in or withdraw from specific classes. Because withdrawing from classes removes coursework from the GPA calculation, this added flexibility was expected to result in higher spring 2020 term GPAs. GPAs were then expected to decline in fall 2020, after these adjustments were no longer in place. Cohorts beginning in the fall 2019 and spring 2020 terms followed the expected trends but the spring 2019 cohort did not, as its average GPA fell during the spring 2020 term and increased in the fall.

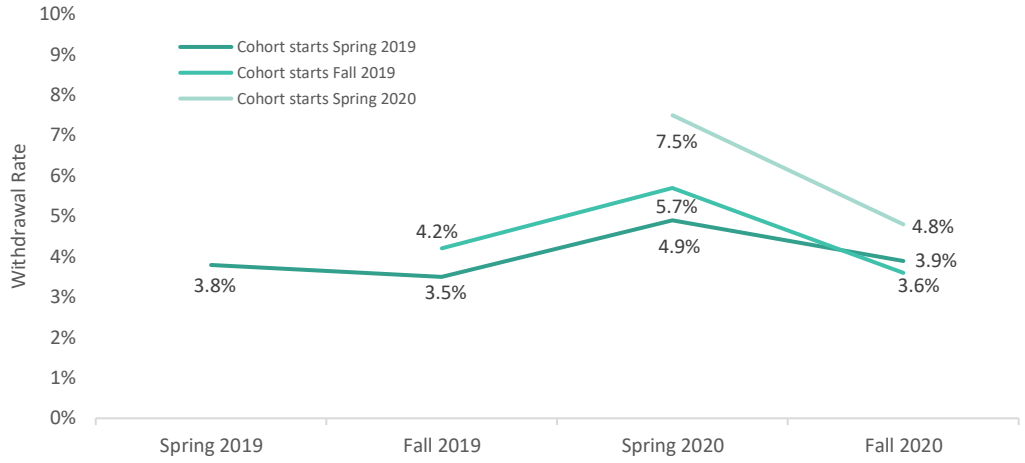
Figure 11. Average term GPA, by student cohort.



Degree-granting institutions' withdrawal rates were also examined to see the impact of delayed withdrawal deadlines. All cohorts' withdrawal rates increased from fall 2019 to spring 2020 as schools

initiated quarantine measures, as seen in Figure 4. The three course subjects with the highest withdrawal rates were mathematics (9.9% of all withdrawals), English (7.9%), and biology (4.9%).

Figure 12. Cohort withdrawal rates, by term.



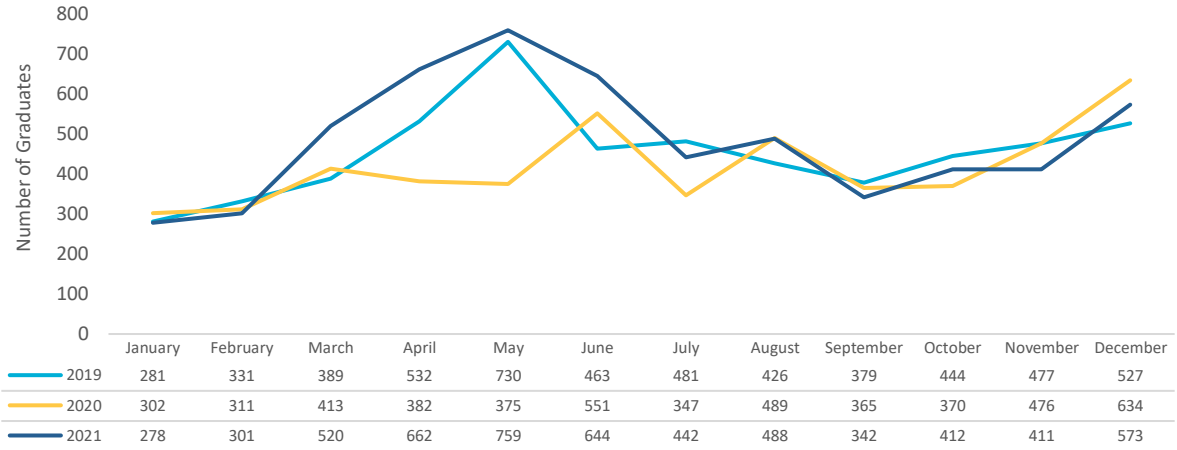
Also potentially associated with administrative responses to the pandemic, fewer failing grades were issued in the spring 2020 term compared to the prior spring term. This finding suggests students were strategic in which classes to drop. However, failing grades in the summer and fall 2020 terms rose when withdrawal deadlines returned to their usual patterns. The drop in attempted versus earned credit hours in fall 2020 resulted from the higher number of failing grades assigned. The same three course subjects (mathematics, 10.2%; English, 9.3%; and biology, 5.5%) had the highest shares of failing grades.

Students with the lowest withdrawal rates were those with the most educational experience. The most recent cohort also had the highest withdrawal rate in the fall 2020 term, while the older cohorts dropped to rates closer to what has been observed in the past.

Technical College Program Completion

As technical colleges largely shut down in April and May 2020, many students who were close to graduating were asked to wait until June to resume their studies. This resulted in a sharp decline in the number of graduates produced in FY 2020. Technical colleges often structure specific programs to coincide with high school calendars, such that most graduates complete their certificate programs in May as the high school year ends. But in 2020 the technical colleges experienced few graduates in each succeeding month from March through May, as shown in Figure 13. Many students returned in June to finish their studies, resulting in a spike in graduations in June that was not seen in prior years. But ultimately the total number of graduates produced in 2020 was significantly less than in years past and subsequent. The total number of graduates was 10.1% lower in FY 2020 than in FY 2019, then the colleges returned to normal operations in and produced 17.3% more graduates in FY 2021 than in FY 2020.

Figure 13. Technical college 2019-21 graduations, by month.

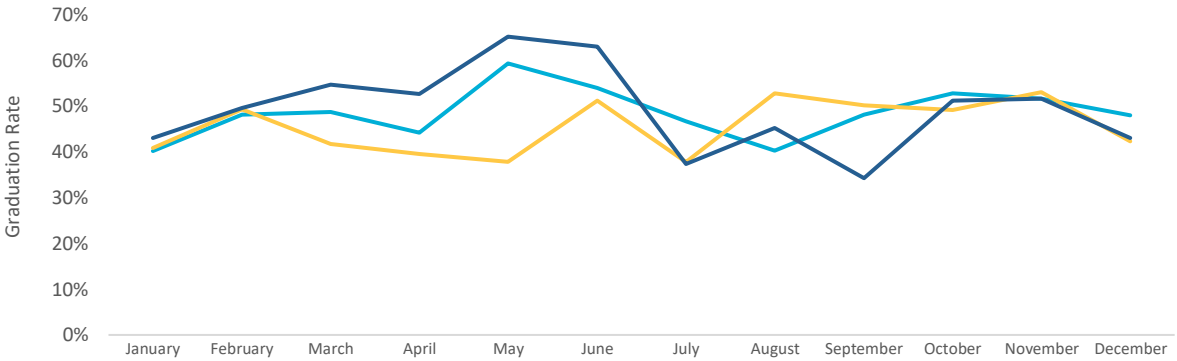


	January	February	March	April	May	June	July	August	September	October	November	December
2019	281	331	389	532	730	463	481	426	379	444	477	527
2020	302	311	413	382	375	551	347	489	365	370	476	634
2021	278	301	520	662	759	644	442	488	342	412	411	573

Technical college graduation rates also declined in FY 2020 as a result of the pandemic and the institutions' limited shutdowns. Graduation rates represent the number of students graduating with their technical certificates, divided by the total number of students leaving the college within a specified reporting period. Students who are still enrolled at a technical college at the end of the reporting period are excluded from the calculation. Figures 14 and 15 examine monthly graduation rates.

In the face of COVID-19 mitigation efforts, many students elected to terminate their studies instead of waiting for in-person instruction to resume in June. These students contributed to lower graduation rates from March through May 2020 than were observed in years past or subsequent. Figure 14 shows this decline, along with the subsequent increase in June 2020's graduation rate after students returned to complete their certificate programs.

Figure 14. Technical college monthly graduation rates, 2019-21 (# of graduates / (# of graduates + # of withdrawals).

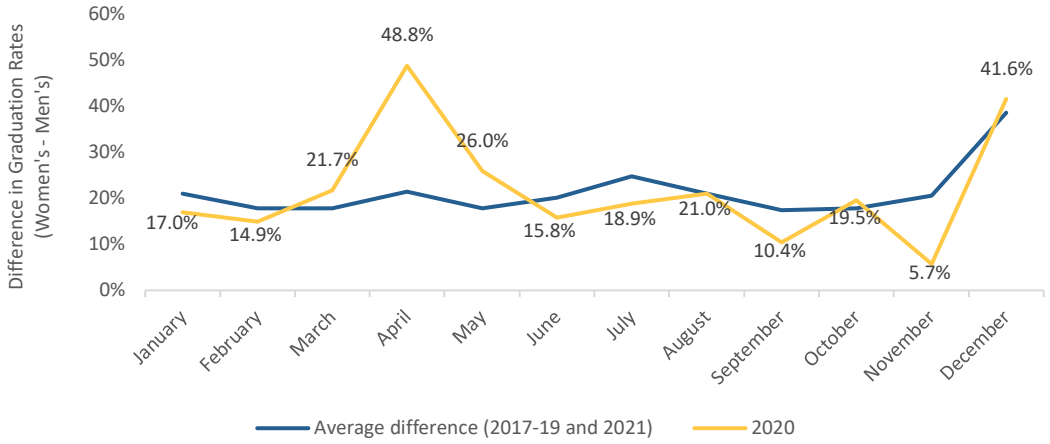


	January	February	March	April	May	June	July	August	September	October	November	December
2019	40.2%	48.1%	48.8%	44.1%	59.3%	54.0%	46.7%	40.3%	48.2%	52.8%	51.7%	48.0%
2020	40.9%	49.3%	41.8%	39.5%	37.8%	51.3%	37.8%	52.8%	50.2%	49.2%	53.1%	42.3%
2021	43.1%	49.6%	54.7%	52.6%	65.2%	63.1%	37.4%	45.2%	34.3%	51.2%	51.6%	43.0%

Examining graduation rates further, the COVID-19 pandemic had a greater impact on men's educational outcomes than women's. Women at the technical colleges typically have higher graduation rates than

their male counterparts, that difference averaging approximately twenty percent. But as the pandemic arrived in Utah in spring 2020, a greater share of men left their programs prior to completion than women, resulting in a tall spike in the difference between men's and women's monthly graduation rates. Figure 15 shows that in April 2020, women's graduation rates reached almost fifty percentage points higher than men's graduation rates, and almost thirty percentage points higher than the average difference observed in 2017-19 and 2021.

Figure 15. Difference between women's and men's monthly technical college graduation rates (women minus men), 2017-21.



Several possible reasons exist for the large spike in the difference between men's and women's graduation rates observed as the COVID-19 pandemic shut down technical college operations. Previous research (see here) has shown that men in Utah's technical schools enroll in high-wage and high-demand programs (programs leading to 4- and 5-star jobs as identified by the Utah Department of Workforce Services) in greater rates than women. Given high employer demand for students in programs that typically enroll males at higher rates, perhaps a greater share of men than women chose to enter the labor force when the colleges closed to in-person instruction. This is partially evidenced by examining technical college job placements: in FY 2020, 41% of all male students who withdrew from their technical programs were hired in related employment, even without having graduated. Only 16% of female non-graduates in FY 2020 were hired in related employment. Furthermore, as pandemic-induced job losses mounted in 2020, the top three industry sectors suffering the greatest losses and that correspond to programs taught by the technical colleges were leisure and hospitality, education and health services, and professional and business services.[1] Fully 65% of technical college graduates in FY 2020 came from programs leading to employment in these fields, and within those programs, 81% of graduates were women. A feared economic downturn, combined with age disparities between men and women (men enrolled in certificate

[1] US Bureau of Labor Statistics. (2021). COVID-19 ends longest employment recovery and expansion in CES history, causing unprecedented job losses in 2020. Retrieved April 15, 2022 from https://www.bls.gov/opub/mlr/2021/article/covid-19-ends-longest-employment-expansion-in-ces-history.htm

programs average 24.2 years old while women average 22.9) may have added extra pressure for men to enter the workforce and for women to finish their schooling.

Conclusion

The COVID-19 pandemic altered Utah's higher education institutions, forcing them to offer more distance education instruction or implement soft closures to slow the spread of the coronavirus. The pandemic likewise had significant impacts on students, though these impacts differ depending on students' cohort membership. For those entering higher education during the spring 2020 term (as the pandemic arrived), students have demonstrated higher withdrawal rates, lower student progress, lower earned credits per term, and lower GPAs coming out of the pandemic than their colleagues from prior cohorts. At the technical colleges, the pandemic delayed many students' graduations until they could safely return to in-person instruction. For other technical college students, specifically males, graduation rates plummeted during the colleges' closures as many individuals left their programs and have not yet earned their certificates.

This research represents an initial look into the short-term effects of the COVID-19 pandemic on students at USHE's colleges and universities. Future analyses are needed to view the pandemic's long-term impacts on institutions and various student cohorts. Further questions regarding pandemic-related barriers to completion, transferability by student cohort (affected by GPAs during the pandemic), and graduate school admissions will all need to be addressed to fully grasp the ramifications of decisions made in the face of a global pandemic.