Fall Enrollment and Delayed Graduation Among STEM Students during the COVID-19 Pandemic

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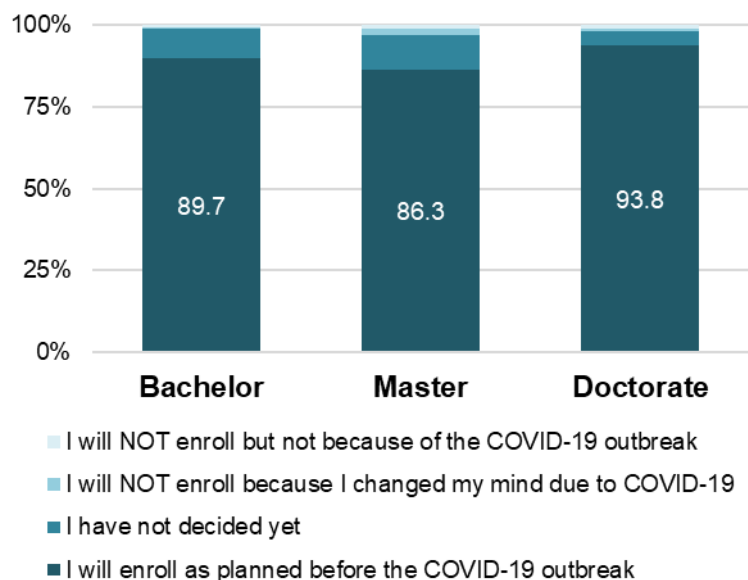
Key Findings

Data from the National Study of STEM Faculty and Students (NSSFS), June 2020

- Nearly 10% of STEM students had not decided or would not enroll in fall 2020 due to the COVID-19 pandemic.

- While 35.5% of doctoral students delayed their graduation, 18.0% of Master's students and 7.6% of undergraduate students did, too.

- Hispanic (12.7%) and Black (10.3%) undergraduates were more likely than Asians (6.3%) and Whites (6.0%) to delay graduation.

- Financial and health concerns were the two major personal factors affecting fall enrollment decisions and delayed graduation statuses.

- Restrictions of access to facilities/ resources and delayed academic coursework/projects were the top two institutional reasons for delayed graduation.

- A majority of students preferred online or a mix of face-to-face and online instruction for fall 2020.

Since March 2020, in response to the coronavirus disease 2019 (COVID-19) pandemic, hundreds of colleges and universities in the U.S. suspended face-to-face classes, closed campuses, and only allowed essential activities and core facilities to continue. The COVID-19 outbreak has severely affected education at many levels. Using data from the National Study of STEM Faculty and Students (NSSFS) collected in June 2020, this report examines how the pandemic has affected fall enrollment decisions and graduation progress among STEM undergraduate and graduate students in the U.S. (sample size = 4,603 students).
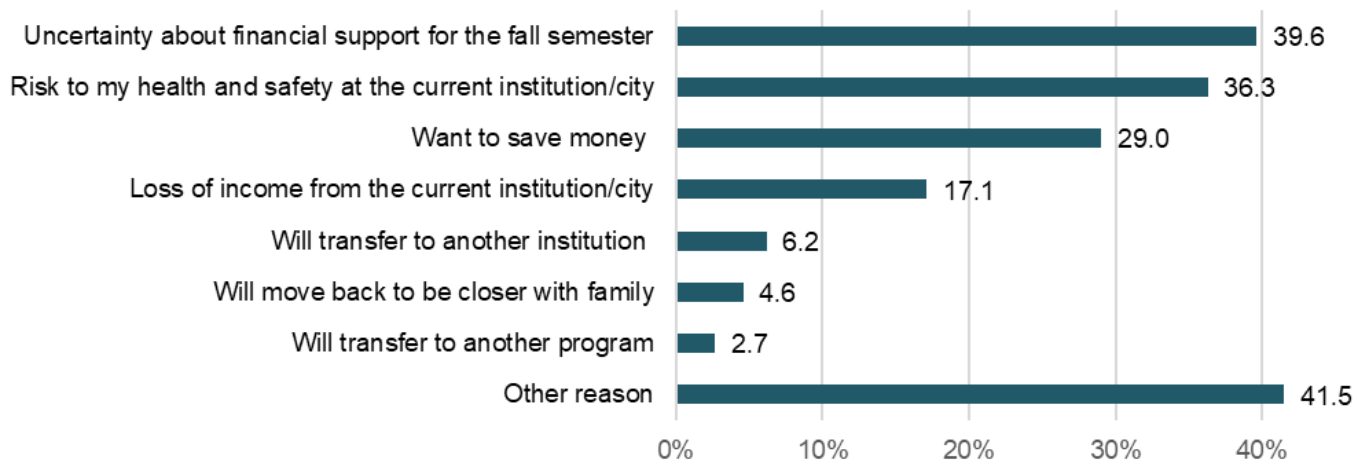
1. How many STEM students plan to enroll in the fall 2020?

- In June 2020, about 89.7% of STEM students planned to enroll in fall 2020, whereas 9.6% of them had not decided yet or would not enroll due to the COVID-19 outbreak.

Legend:
- I will NOT enroll but not because of the COVID-19 outbreak
- I will NOT enroll because I changed my mind due to COVID-19
- I have not decided yet
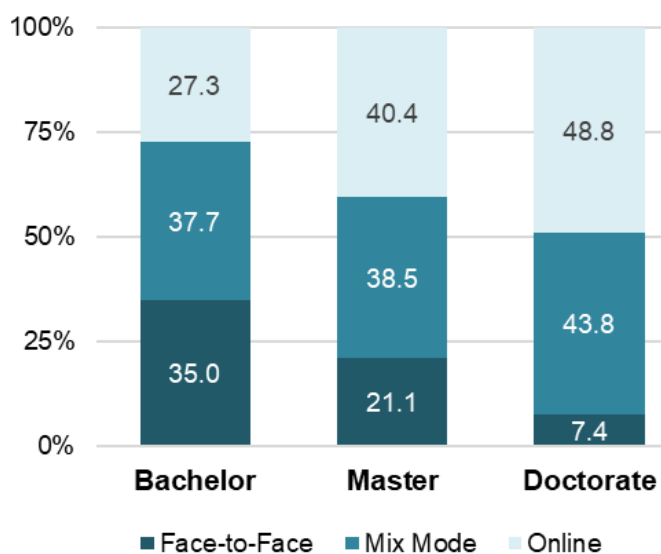- I will enroll as planned before the COVID-19 outbreak

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2. What are the reasons for potentially not enrolling in fall 2020?

- Among those who had not decided or would not enroll in fall 2020, the top three concerns are: (a) "uncertainty about financial support for the fall semester" (39.6%), (b) "risk to my health and safety at the current institution/city" (36.3%), and (c) "want to save money" (29.0%).
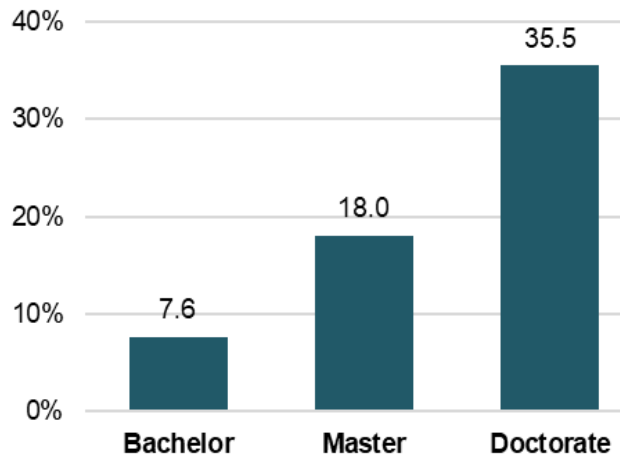
Reason	%
Uncertainty about financial support for the fall semester	39.6
Risk to my health and safety at the current institution/city	36.3
Want to save money	29.0
Loss of income from the current institution/city	17.1
Will transfer to another institution	6.2
Will move back to be closer with family	4.6
Will transfer to another program	2.7
Other reason	41.5

3. What is the preferred instruction mode for the fall 2020?

	Bachelor	Master	Doctorate
Online	27.3	40.4	48.8
Mix Mode	37.7	38.5	43.8
Face-to-Face	35.0	21.1	7.4

- Among undergraduate STEM students, 35.0% preferred face-to-face instruction for the fall 2020, whereas 27.3% preferred online learning and 37.7% preferred a mix of face-to-face and online teaching.

- Among Master's degree students in STEM, 40.4% preferred online learning for the fall 2020, while 21.1% preferred face-to-face teaching and 38.5% preferred a mix of the two instruction modes.

- Among doctoral students in STEM, whereas 48.8% preferred online learning for the fall 2020, 7.4% preferred face-to-face teaching and 43.8% preferred a mix of the two instruction modes.
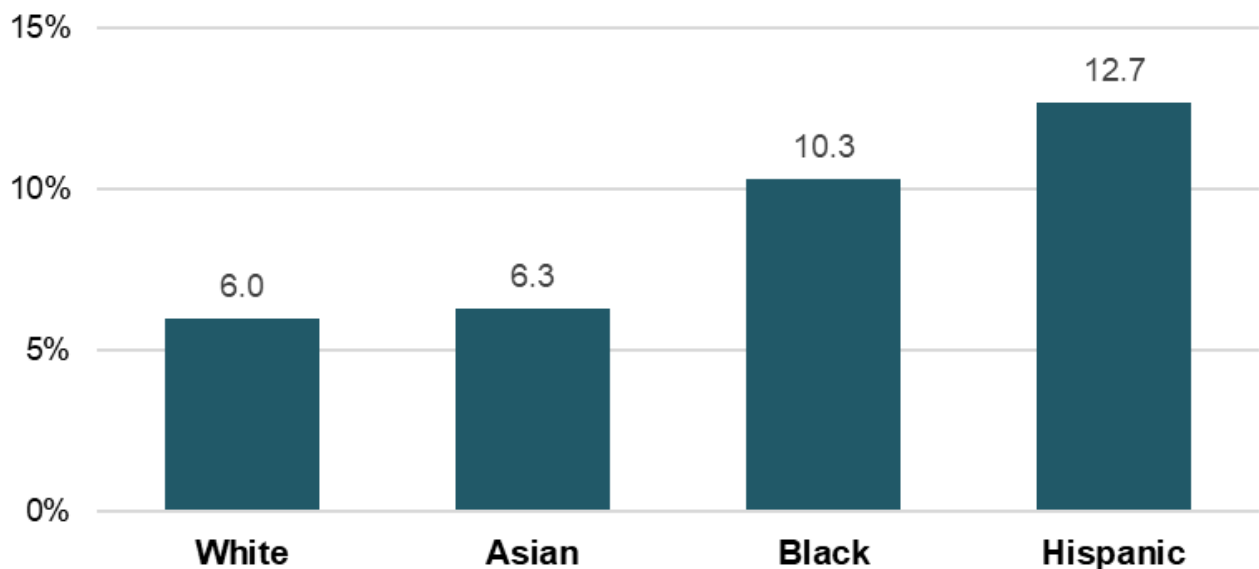
4. How many STEM students delayed their graduation due to the COVID-19 pandemic?

- In June 2020, approximately one-third of doctoral students in STEM (35.5%) reported delaying their graduation because of the COVID-19 outbreak.

- Meanwhile, about one out of five Master's students in STEM (18.0%) and one out of 13 STEM undergraduates (7.6%) delayed their graduation due to the pandemic.
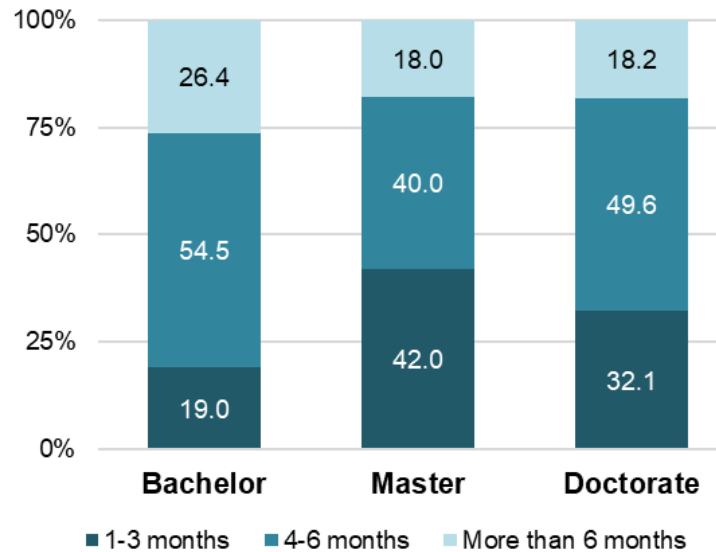
5. Whether the delayed graduation rates vary across racial/ethnic groups among undergraduate STEM students?

- Among undergraduate STEM students, Hispanics (12.7%) and Blacks (10.3%) were more likely than their Asian (6.3%) and White (6.0%) peers to delay graduation.
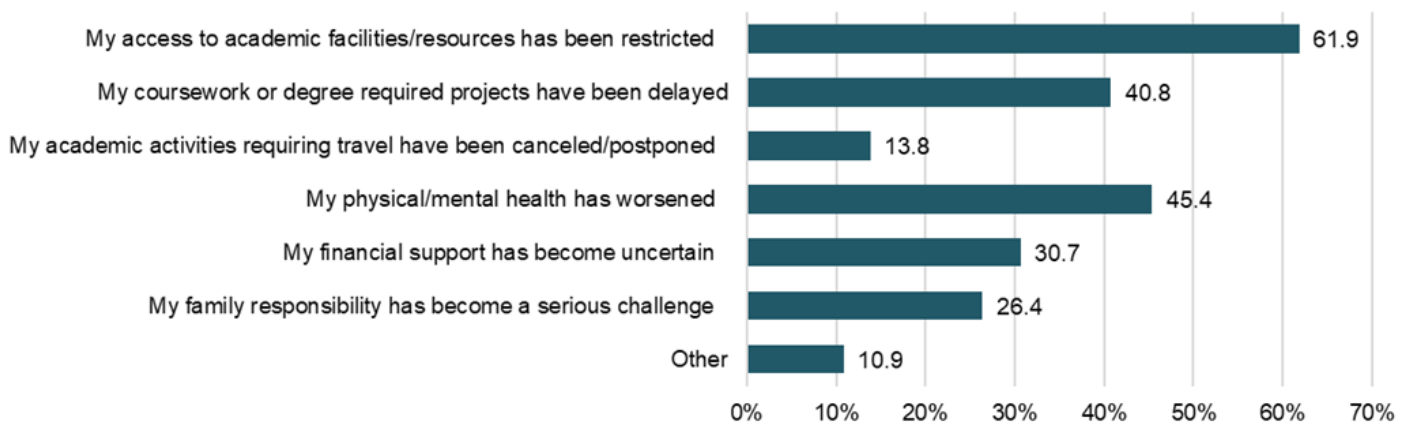
6. How many months is graduation date delayed due to the COVID-19 pandemic?

- The majority of those who delayed their graduation due to the COVID-19 pandemic—about 73.6% of undergraduates and 82.0% of graduate students—reported that their graduation date was delayed by six months or less.

7. What are the reasons for delayed graduation?

- Among those who delayed their graduation, the top two institutional reasons are (a) restrictions of access to academic facilities/resources (61.9%), and (b) delayed coursework or degree required projects (40.8%).

- With regard to personal reasons for delayed graduation, 45.4% of students cited their worsening physical/mental health, while 30.7% of students were uncertain about financial support and 26.4% of students reported challenges over their family responsibilities.

Data, Sample, and Methods

Data used for this report were from the National Study of STEM Faculty and Students (NSSFS) during the COVID-19 Pandemic, funded by the National Science Foundation (NSF) RAPID grant (DGE-2031066; DGE-2031069), using funds from the Coronavirus Aid, Relief, and Economic Security (CARES) Act. The NSSFS was conducted by a group of researchers from Claremont Graduate University, The University of Kansas, and The University of Texas at San Antonio. The study was administered through an online survey platform—Qualtrics—on June 3-22, 2020. Informed consent from participants were obtained electronically prior to gathering the survey data.

The final analytic sample for this report comprised 4,603 STEM students from 72 higher education institutions in 31 states. Of the total sample, 77.5% were undergraduate students, 13.4% were Master's students, and 9.1 % were doctoral students. Approximately, half (50.0%) identified as female, while 47.6% were male and 2.4% were transgender, genderqueer, gender-non-conforming, or other gender. With respect to race and ethnicity, 54.3% identified as non-Hispanic White, 20.8% were non-Hispanic Asian, 14.7% were Hispanic, 5.0% were non-Hispanic multirace, 2.7% were non-Hispanic Black, and 2.5% were non-Hispanic Native American or other race/ethnicity. The mean age of the total sample is 22.9. Most respondents (89.1%) were U.S. citizens or permanent residents.

Differences between groups (for Figures 4 and 5) were tested using a t statistic at the $p < 0.05$ significance level. No adjustments were made for multiple comparisons. The results in the figures presented in this report are bivariate associations that may be explained by other factors not controlled for. Statistical analyses were performed using R software (version 4.0.2).

Suggested Citation

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