Chancellor's Graduate and Professional Advisory Board (CGPSA)
COVID-19 Impact Subcommittee Final Report, 2021–2022

Members: Aaron Benedetti (co-chair), Bozhidar Chakalov (co-chair), Jill Huynh, Charlotte Bergheimer, and Alex Kermani

Background

The novel coronavirus pandemic (COVID-19) has impacted all spheres of life for graduate and professional students. The COVID-19 Impact Subcommittee was formed with the goal of understanding the ways in which the pandemic affected, and continues to affect, the degree progress of graduate and professional students. During the past year, we met with administrators, faculty, and student leaders at UC Davis and other UC institutions to ascertain the various pathways stakeholders are using to navigate the pandemic. We quickly found that while data had been gathered by UC Davis that are relevant to this subcommittee's goals, more work is necessary to analyze this data. We also found that there are few other groups at UC Davis actively engaged in understanding COVID-19's impact on degree progress. By meeting with statisticians and data administrators, we initiated the analysis process. The data indicate actual and impending delays in degree progress, but the data are also insufficient to provide a nuanced picture of degree progression during the pandemic. As a result, we proceeded to reach out to the UC-wide Academic Senate to understand similar efforts regarding faculty and to apply that approach to graduate and professional students. Furthermore, we also participated in the augmentation of existing surveys and formation of new ones to gather data on student degree progress. The goal of this report is to summarize the preliminary findings of the subcommittee both from cataloging the existing data and mapping ongoing and upcoming efforts to understand the impact of COVID-19 on student degree progress. Below, we expand on our efforts and describe our findings.

Meetings and Information Gathering

Throughout the academic year, this subcommittee went through cycles of information gathering, synthesis, and connecting with those responsible for student outcome or pandemic-related data. We knew that others were asking students about their pandemic experiences, so we first looked at existing sources to avoid re-polling, re-discovering, or re-inventing data.

A few areas were immediately identified as potential sources of relevant information: Student Progress Assessments (SPAs), student withdrawal and Planned Educational Leave Program (PELP) utilization, UC Graduate Student Experience Survey (UCGSES), and the Office of Graduate Studies Analysis and Policy led by John King.

In the SPA, the we identified the following questions as relevant to our investigation:

- "Plan for Student Financial Support for Upcoming Year"

- “The faculty's overall assessment of the student's progress”
- “Comments from faculty” and “Student Comments” that refer to COVID-19, the pandemic, or related terms

We hypothesized that PELP and student withdrawal data would reflect that more students needed a temporary or permanent break from UC Davis. The UCGSES provided our initial correlations and questions to take into future meetings. It is a comprehensive survey most recently administered in spring 2021. With the UCGSES findings as a starting place, we sent requests for information to Rachel De Los Reyes, John King, Karisa Asato, and Duncan Temple Lang.

In February of 2022, we received a report from John King that included:

- PELP and withdrawal data
- Natural language analysis of UCGSES free-response data
- SPA keyword searching and qualitative analysis

We hoped to get more qualitative student perspectives, but the scope of that undertaking was prohibitive.

We believe other UC campuses must have like-minded students analyzing disruptive effects of COVID-19 also. On the recommendation of Academic Senate Chair Robert Horwitz and Vice Chair Susan Cochran, we reached out to outgoing GSA External Vice President Gwen Chodur to ask if she knew of impact assessments at other UC campuses, but didn’t receive a reply in time for inclusion in this report.

In the last few weeks of spring 2022, we learned that some student participants in the Professors for the Future program administered a COVID impact survey at UC Davis. We have not made a data sharing agreement with these organizers.

Findings

The UCGSES COVID-19 and remote learning survey data indicate that many graduate and professional students at UC Davis, especially academic doctoral students, were experiencing or expecting a delay in degree progress in spring 2021, when the survey was distributed. Some 56 percent of academic doctoral student respondents noted a delay of at least one term due to COVID-19, compared to 37 percent of all graduate student respondents. Thirteen percent of academic doctoral students noted a delay of three or more terms—by degree level, this is the only demographic that indicated such significant delay. An overwhelming 83 percent of respondents specified that delays in degree progress are due to difficulties conducting research, and 47 percent specified delays due to difficulties conducting experimental work. Students in professional fields, clinical sciences, and the arts report the fewest delays; however, students in all other disciplines at UC Davis—humanities, life sciences, math and physical sciences,

engineering and computer science, social sciences and psychology—report delays at a higher rate than the survey average. Chicano/Latinx students, international students, and students over the age of 25 report delays in degree progress at higher levels than other demographic groups. Students in the humanities and social sciences, as well as students aged 30 and above, report delays of at least three terms at a higher rate than other students. Unfortunately, the available survey data are not differentiated according to student-parent status or disability status, though this information could provide insight into the relationships among degree progress, care work, and university accessibility in the context of COVID-19.

UC Davis Graduate Studies Analysis and Policy compiled its report on “Measurable COVID-19 Impacts on UC Davis Graduate and Professional Students" (see addendum) about eight months after the 2021 UCGSES survey data were collected. Though the report provides important context for the UCGSES data, it also uncovers new questions and data collection problems while also demonstrating that COVID-related issues are an ongoing challenge. PELP (Planned Educational Leave Program) use has increased by more than 20 percentage points since the beginning of the pandemic, especially among students in professional degree programs.[1] The report suggests that because tuition in professional programs is generally higher, and because students in professional programs tend not to be funded by academic appointments and fellowships, temporary withdrawal via PELP is more economically rational for professional degree students than for other students. We add that this finding may imply significant economic *dis*incentives to use PELP for non-professional degree students. For those who rely heavily on fellowships and academic appointments (as TAs, AIs, or GSRs) for financial support—including many academic doctoral students, who reported significant delays to degree progress in the 2021 UCGSES survey—utilizing PELP may exacerbate, rather than alleviate, conditions of financial insecurity. PELP prevents students from receiving fellowships, teaching appointments, and UC SHIP fee waivers, all of which amount to a withdrawal of crucial material support during an ongoing pandemic. Consequently, PELP use is not a reliable proxy for degree progress or delay, and university policy that recommends PELP as a tool for mitigating delays to degree or navigating the pandemic may yield inequitable outcomes.

We requested that the “Measurable Impacts" report authors analyze survey responses to questions IX.8 and IX.10 of the UCGSES survey instrument, which invited students to describe their own experiences, concerns, and suggestions regarding the university’s pandemic response. Report findings were inconclusive for our purposes; the authors acknowledge that their analytical model may deemphasize some topics that appear frequently in survey responses, including financial aid and support.[2] We recommend a more granular analysis of this information in future iterations of the UCGSES. Such written responses provide valuable information about how individual students navigate the ongoing COVID-19 pandemic and university policy. These specific, self-reported experiences are a crucial contextual supplement to aggregated, quantitative survey data.

[1] See addendum, p. 3.
[2] See addendum, p. 6.

The report notes that very few Student Progress Assessments (SPAs) mention the pandemic or COVID-19,[3] though we suspect that SPAs assessing the current academic year may make more explicit mention of degree progress and/or delay in relation to the COVID-19 pandemic. Table 1 summarizes SPA results since 2016, including 2021 year-to-date results as of mid-May 2022. Most strikingly, rates of incomplete SPAs have increased significantly since the beginning of the pandemic, which might reflect faculty and/or student overload. We worry that delays to degree progress may compound because SPA completion rates are historically tied to departmental funding allocations. Higher rates of incomplete SPAs result in less funding, which could correlate to less material support for students already facing increased difficulties during the pandemic.

Table 1: SPA outcomes by academic year.

AY	Incomplete	Opted-out	Satisfactory	Marginal	Unsatisfactory
2016–17[4]	33.5%	4.4%	59.0%	2.2%	1.0%
2017–18	0.4	8.6	87.1	2.9	0.9
2018–19	0.9	9.3	85.9	3.0	0.9
2019–20	12.9	7.8	76.4	2.2	0.6
2020–21	11.9	9.3	76.4	1.9	0.5
2021–22 (YTD)	n/a	27.9	70.0	1.7	0.3

The “Measurable Impacts” report notes that very few graduate and professional students indicate “withdrawn” registration status.[5] However, as noted by the report authors, “withdrawn” registration indicates only a change of student registration status and does not include previously registered students who did not re-register for a subsequent term. Table 2 summarizes graduate and professional student cancellation and withdrawals since 2019, but we do not have access to pre-pandemic data for comparison.

Table 2: Graduate and professional student cancellation and withdrawal by academic year.

AY	Cancellation	Withdrawal	Total
2019–20	143	31	174
2020–21	218	39	257
2021–22 (YTD)	231	38	269

The “Measurable Impacts” report does not provide specific data about students who have taken medical leave or payroll leave, or about student-parents, but we anticipate receiving access to this information in fall 2022.

[3] See addendum, p. 7.
[4] This was the first academic year in which the SPA was institutionalized, which accounts for low completion rates.
[5] See addendum, p. 2.

Nearly all data upon which UC Davis Graduate Studies have so far relied for measuring degree progress during the COVID-19 pandemic are lagging or imperfect indicators of progress. For example, delays to degree milestones such as qualifying exams will only become apparent in yearly or quarterly quantitative data *after* those exams have already been delayed; additionally, such quantitative data will not capture the impact of the pandemic and institutional policies on the nature of student research (e.g. changing or narrowing research scope, canceling fieldwork, substituting methods, etc.). Anecdotal data shared with our subcommittee corroborate our hypothesis and the UCGSES survey data indicating that many students are experiencing significant delays to degree. These delays may not appear in Graduate Studies' quantitative analyses, at least not until these delays become more serious, more difficult to manage, and potentially irreversible (e.g. abandoning a degree).

Recommendations

COVID-19 and its residual impact on graduate and professional student degree progress at institutions of higher education, including UC Davis, has yet to be fully realized or understood. While the pandemic may have been initiated by a virus, its long-term effects will be determined by institutional policies that govern who receives material support, and when.

Based on our findings, the COVID-19 Impact Subcommittee brings forth the following recommendations to UC Davis Graduate Studies and Chancellor Gary S. May. These goals are targeted at both learning more about student impact and improving the student experience.

Data analysis and monitoring: Quantitative and qualitative data from SPAs, PELP and UCGSES surveys should continue to be collected, analyzed, and publicized. The "Measurable COVID-19 Impacts on UC Davis Graduate and Professional Students" report provided by Graduate Studies should be updated to include additional data points (e.g., the Graduate Cost of Attendance Survey; GCOAS) and a more robust analysis of student open-ended feedback. Efforts should consider ways to measure student experience through anecdotal metrics such as change in dissertation, reduction in research scope, or increased faculty "leniency". The COVID-19 survey administered by the Professors for the Future program should be included in the overall analysis and inter-campus collaboration. Graduate Studies should join or create collaborative opportunities to compare and implement UC-wide surveys and policies. Ongoing system-wide collection of data and metrics will help to define the issues we are facing and track the progress we make in addressing them. This can increase accountability in these efforts and developing these tools should be among shared priorities.

Institutionalized COVID-19 impact working group: University resources should be allocated for a formalized campus-wide COVID-19 impact working group to support graduate and professional student success. This should include funding for student participation. Ultimately, this working group should complement ongoing cross-campus efforts to respond to the pandemic and function with similar scope as current faculty efforts led by the system-wide Academic Senate.

Graduate student representation: The committee identified a number of surveys and decisions targeted at graduate and professional students that do not seem to include these students in the design or analysis of the tools, nor the resulting policy changes. Such opportunities as suggested by Karisa Asato in Graduate Studies may include the UCGSES survey, which has established two workgroups that can include students - one for instrument validation and one for data analysis. Also the GCOAS survey committee is discussing having a student involved in the analysis. Equitable opportunities to engage students and elevate their lived experience in spaces where decisions are made that will impact their educational trajectory must be created and fostered.

Holistic academic review and appraisal: Similar to the UC Academic Senate recommendations around “Achievement Relative to Opportunities” in academic advancement, graduate and professional students should be afforded the commitment to a holistic academic advancement review. In partnership with our faculty counterparts, this committee asserts that most graduate and professional students have put forth a good faith effort into sustaining the University during the difficult period of the pandemic. Yet all graduate and professional students, regardless of field, had to dedicate more time adapting to the impact of the pandemic at the expense of research and scholarly activities. Students should not be penalized for these extenuating circumstances. Time to candidacy, resources for research, and extended teaching accommodations should be further considered with this holistic lens.

Resources for research recovery: Since 2020 funds have dramatically shifted to provide pandemic academic support, leaving student research priorities a low priority. We recommend the allocation of resources and time necessary for individual and institutional recovery from some of the most acute negative impacts to academic productivity. COVID-19 impeded research by preventing faculty and students from entering labs, archives, field sites, and performance spaces, as well as potentially resulting in loss of research funding. These impediments led to sunk costs, lost time, and research outcomes not able to be realized. In addition, students may have had greater time constraints due to the need to adapt to new modes of instruction and/or increased personal constraints, such as health issues or increased dependent care responsibilities. Meaningful campus investment is critical for graduate and professional students to be able to resume research, produce scholarly work, and ensure UC Davis continues to lead in academic excellence.

Campus-level funding for approved teaching modifications: Graduate and professional students continue to experience COVID-related delays to obtaining their education, and many have needed to increase teaching assignments to help compensate for these challenges. Building on research recovery resources, this recommendation asks UC Davis to provide centralized funding to support teaching/service duty modifications. Additionally, given the persistence of the pandemic, we suggest that the Chancellor consider additional adjustments to the Academic Student Employee eligibility be updated to extend beyond the 21st quarter or 14th semester, and include student representation in the deliberation and decision-making process.

Conclusion and Future Directions

UC Davis sought to be a leader in proactively responding to the public health crisis through various COVID-19 precautions. However, we as student leaders are disappointed by the relatively limited focus on recognizing and remedying the pandemic's impact on graduate and professional education. When we convened our subcommittee in fall 2021, our early questions revolved around what was being done to examine and address the impact COVID-19 has had on graduate and professional student degree progress. While the administration made some initial efforts in the first year of the pandemic, active monitoring and policy review has largely stagnated despite the ongoing challenges and effects of COVID-19 on student success. Graduate and professional student outcomes are integrally tied to UC Davis' mission as a public university, and the disproportionately negative impact the pandemic has had on various demographic subgroups is of great concern. Additionally, many graduate and professional students—especially those who have worked in teaching appointments as readers, TAs, or AIs—provided essential labor during UC Davis's emergency pivot to remote instruction in order to support undergraduates as a part of the university's core educational mission. Through our various meetings and data gathering endeavors this year, the resounding message has been that COVID-19's impact on degree progress is not only a critical issue of access and equity for students during unprecedented times but also a key oversight given the imperative role graduate and professional students play in undergraduate education, academic scholarship, university operations, etc.

The unevenness with which UC campuses have responded to the pandemic is additional cause for concern as UC Davis may lag behind its counterparts. For example, UC Berkeley has automatically applied a two-year time-to-degree adjustment whereas UC Davis currently offers only a one-year blanket extension. As the pandemic continues, the disruption to graduate and professional studies is likely to wear on. At present, it does not seem that the effects will be recognized until more serious damage to degree progress is observed, perhaps among a wider subset of graduate and professional students. We find this problematically reactive rather than equitably proactive. To address this issue, we implore UC Davis administration to audit the policy changes in place at other leading campuses, survey faculty and staff specifically about the impact of the pandemic on graduate and professional education, and facilitate coordinated student advocacy that allows for additional needs and issues to be addressed. In this report, we are able to offer only a cursory representation of concerns and recommendations.

We are alarmed that a designated group focused on addressing COVID-related issues for graduate and professional education, such as this subcommittee, did not previously exist. Due to competing demands for our time and attention, many members of our subcommittee are unable to continue on CGPSA next year. This speaks to the utmost need for institutional prioritization of the issues presented in this report as relying on volunteer efforts is not sustainable. As emphasized to us by the Academic Senate Chair and Vice Chair, a great deal more resources are needed towards this work, including staff support, funding, etc. Overall, a paid working group on graduate and professional student welfare (akin to the standing Academic Senate committee on faculty welfare) is advisable so as to attend to pressing

COVID-related concerns and to also be proactive about other ongoing or future matters. We also recommend that masters and professional students (or recent alumni who can offer pandemic-era perspectives) are represented in future discussions as our existing subcommittee is composed solely of doctoral students/candidates. Attention to our population is long overdue as we transition into the fourth academic year impacted by the pandemic.

NOTE: Addendum Begins On Next Page

MEASURABLE COVID-19 IMPACTS ON UC DAVIS GRADUATE AND PROFESSIONAL STUDENTS

Winter 2022[*]

The COVID-19 pandemic has had widespread impacts at every level of society. Specifically at UC Davis, members of the Chancellor's Graduate & Professional Student Advisory Board (CGPSA) asked Graduate Studies in January 2022 for information about the effects of COVID-19 on the academic progress of graduate students. Some of the requested information was prompted by results published from the UC Graduate Student Experience Survey (UCGSES), a system-wide climate survey of graduate and professional students conducted spring 2021.

This report provides preliminary information and analysis that was requested about the following impacts of COVID-19 on graduate and professional students:

1. Student utilization of the Planned Educational Leave Policy (PELP) and withdrawn registration
2. Survey results from the 2021 UCGSES, including quantitative analysis of text responses
3. Information from UC Davis Student Progress Assessments
4. Information about delays in academic progress

Not all of the impacts in these areas are easily measureable. And especially for students in doctoral programs that typically require 5 or more years to complete, a better understanding of COVID-19 impacts will emerge over time. But with the impacts of COVID-19 already spanning parts of three different academic years, Graduate Studies is glad to provide preliminary results this report to CGPSA.

Please note: All results presented in this report should be considered preliminary. The goal of this report is to respond to a series of requests from CGPSA to Graduate Studies in January 2022, rather than to provide a comprehensive assessment of the impacts of COVID-19 on more 7,000 graduate and professional students. The emphasis of the report has been to respond to these requests as quickly and completely as possible. Every attempt has been made to provide accurate and representative information, but it is possible that some findings will be restated in the future due to error or as additional data become available.

[*] *For more information contact John L King, Graduate Studies Executive Director of Analysis & Policy*
jhnking@ucdavis.edu

1. PELP and Withdrawn Registration

Students are using PELP and withdrawing at higher rates since the start of COVID-19

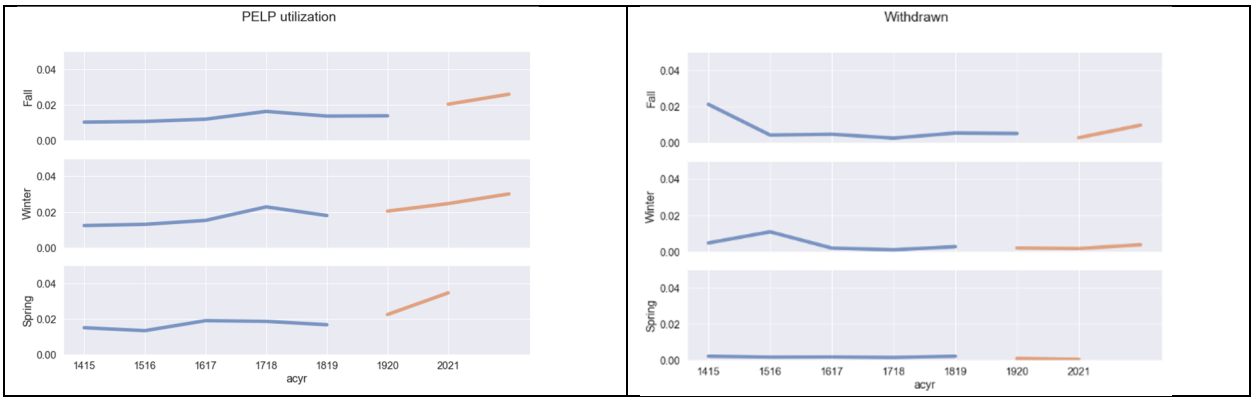
The Planned Educational Leave Policy (PELP) provides important flexibility for students who can benefit from a temporary pause in enrollment and academic work, often for personal, financial, or medical reasons. Since the beginning of the COVID-19, students have utilized PELP at a higher rate. The table below shows that students increased utilization of PELP by more than 20%, from 1.8% to 2.1% of registered graduate and professional students. The figure below shows the number of students on PELP separately for fall, winter, and spring terms to distinguish between impacts of COVID-19 and typical patterns of retention and attrition as the school year progresses.

Students with a registration status of "Withdrawn" have also increased, but from a very low level. Note that these are students who may have been in a registered status but then changed. It might not include students who did not register after leaving a program. Some of those students might be readmitted to their programs in the future. A more complete analysis of attrition during the period affected by COVID-19 will be possible in the future.

Table 1. PELP Leaves and Withdrawn Registration Status Before and Since COVID-19

	Before COVID-19 *Fall 2014 - Fall 2019*	**Since COVID-19** *Winter 2020 - Winter 2022*	**Change**
Average Enrollment *Graduate & Professional*	7,078	6,893	-184 -2.6%
PELP Leaves	130 1.8%	158 2.1%	28 0.3%
Withdrawn Registration	18.9 0.26%	20.1 0.39%	1.2 .13%

Figure 1. PELP Leaves and Withdrawn Registration Status Before and Since COVID-19 by Term



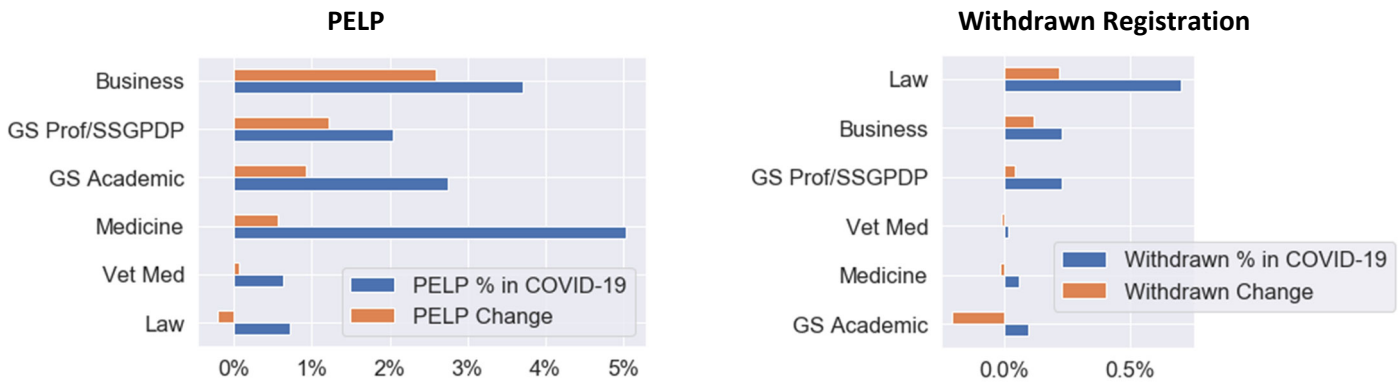
Fall and spring include Law and Veterinary Medicine students enrolled in semesters (not quarters)

Students in certain professional programs had higher rates of PELP and withdrawn registration since the start of COVID-19

Students went on PELP or withdrew registration at different rates depending on their field of study. Specifically for PELP, students in the Graduate School of Management (GSM), students in Self-supporting Graduate Professional Degree Programs (SSGPDP), and students paying Professional Degree Supplemental Tuition (PDST) saw larger increases in their utilization of PELP. A possible explanation is that tuition and fees are higher for these programs, and students in these programs generally receive lower levels of support from fellowships or support from academic student employment as a Teaching Assistant or Graduate Student Researcher.

Students in the School of Law saw the largest increase in withdrawn registration since COVID-19, although from levels that are typically higher than other fields of study. Students in academic doctoral and master's programs withdrew at lower rates during COVID-19. But recall from Table 1 that the overall number of students withdrawing registration is quite low.

Figure 2. Change in PELP and Withdrawn Registration Status by Field of Study

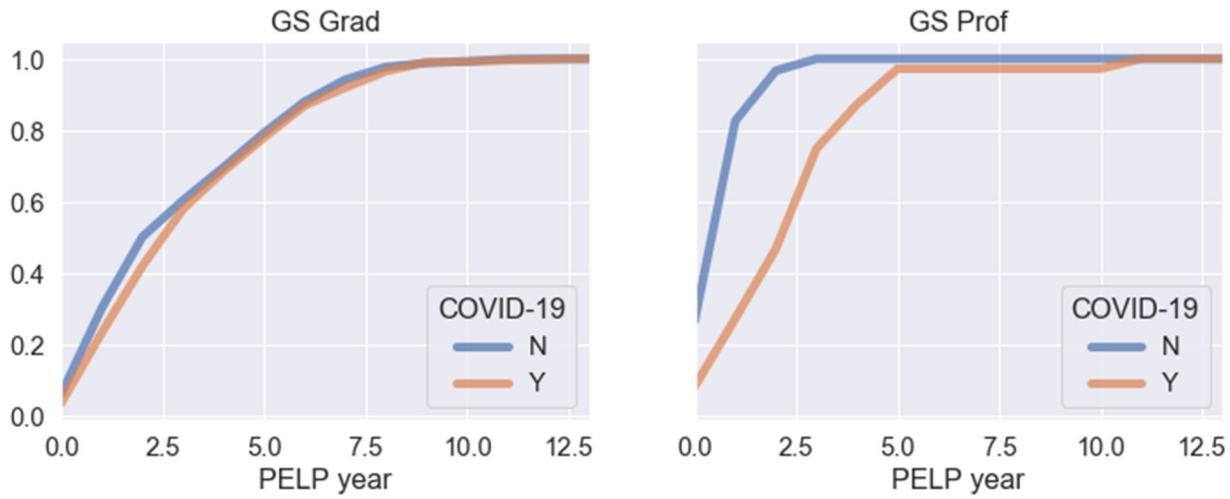


CGPSA also requested information about whether PELP were more common among students in graduate programs organized as graduate groups rather than departmentally-based programs. In data not reflected in Table 1 or Figure 1, nearly all of the increase in PELP utilization in academic programs came from students in departmentally-based programs; COVID-19 was not associated with greater PELP utilization by students in graduate groups.

COVID-19 affects the timing of PELP utilization more for PDST/SSGPDP students

Figure 3 below shows the cumulative share of students on PELP by how many years since they started their degree program at UC Davis. For instance, the "GS Grad" panel on the left shows that approximately 80% of students on PELP were in years 1-5 of their program, and 20% of students on PELP were in year 5+ of their studies. (Note that approximately 10% of students are in year 5+ of their studies, so these students typically utilize PELP at a higher rate than other students.) For graduate academic students, COVID-19 did not seem to affect the timing of when students go on PELP, with perhaps a slight decrease in the relative proportion of students going on PELP in their first few years of study. However, for "GS Professional" students – i.e. those paying PDST or in SSGPDPs – COVID-19 seems to have shifted PELP use to students in more advanced years of study. Prior to COVID-19, 83% of GS Professional students going on PELP were in their first or second year of study; since then, the median GS Professional student on PELP had completed more than 2 years of study, and approximately 25% were in year 4+ of their studies. (Due to data limitations at the time of writing, this summary does not show the impact of COVID-19 on the timing of PELP for students pursuing an M.D., D.V.M., or degree in the Graduate School of Management or School of Law.)

Figure 3. Impacts of COVID-19 on PELP Timing by Year of Study



In a sample of PELP leaves, most were unrelated COVID-19

Of 20 randomly selected students going on PELP since the outbreak of COVID-19, only 3 students (15%) specifically mentioned COVID-19 in correspondence and case files related to their PELP leaves. For 13 students (65%), reasons for going on PELP were clearly unrelated to COVID-19 (e.g. caring for a newborn or pursuing an internship). Of the remaining 4 students (20%), several mentioned personal reasons without elaboration in the student record. It is possible that some of them were influenced by COVID-19. If this sample of 20 students is representative of the 737 individual students on PELP status at any point since winter 2020, then approximately 15% but as high as 35% of students were influenced by COVID-19 in their decision to utilize a PELP leave. This estimate accords with the 22% overall increase in PELP utilization since the pandemic (Table 1).

2. Survey Results from the UCGSES

Graduate and professional students at UC Davis were invited to participate in the UC Graduate Student Experience Survey (UCGSES) in March 2021, near the end of the 2020-21 academic year in which most instruction was remote due to COVID-19. Since then, UCGSES results have informed decisions about the campus return from remote instruction following the 2020-21 academic year. For instance, Associate Dean Hartigan-O'Connor for Graduate Students and Postdoctoral Scholars sent an email in July 2021 to all graduate students to raise the awareness of mental health concerns related to COVID-19, and to refer students to campus mental health resources. Graduate Studies staff worked with faculty in the Advising and Mentoring Pilot Program to analyze and discuss UCGSES results, with a focus on program climate and inclusivity to enhance mentoring and student success. Graduate Studies published a November news article and created a UCGSES landing page to highlight findings from the survey and connections to related campus resources and initiatives. And Graduate Studies met with CGPSA in November to share context from previous surveys and current UCGSES results, including the comprehensive system-wide UC Info Center UCGSES data dashboard.

UCGSES included two specific questions on impacts of COVID-19 that allowed students to provide up to 500 characters each about how the university can support students during the pandemic, and how to prepare for the transition back from remote instruction (see text in Figure 4 below). Each question received more than 400 responses, with 322 students providing a response to both. For reasons of student privacy it is not possible to share the survey responses with CGPSA directly. And because of the volume and variety of responses, it is difficult to characterize the results in a meaningful way.

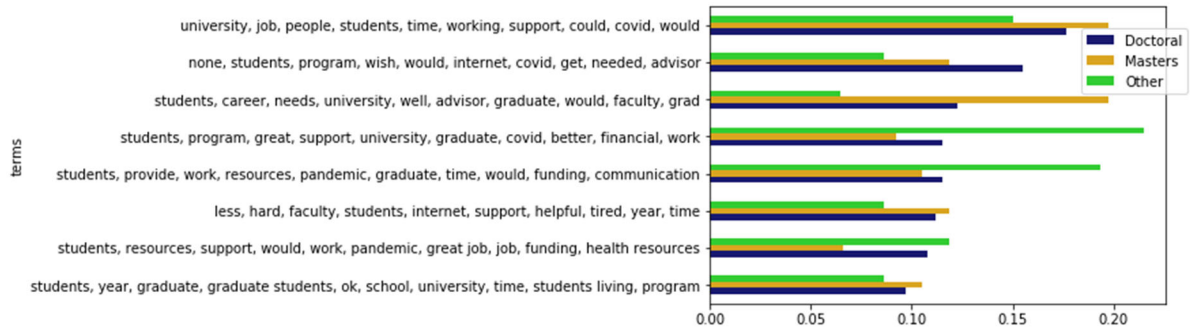
So although a comprehensive analysis of these responses is not possible at this time, one approach Graduate Studies explores in this report is latent Dirichlet allocation (LDA). LDA is a natural language processing model for grouping words or phrases into "topics" with terms that are more likely to co-occur with one another, and less likely to co-occur with words or phrases in other topics. After estimating an LDA model on all the survey responses, it is possible to assign each response with the topic it most closely fits. Further, it is possible to analyze whether student characteristics are correlated with response topics.

The vertical axis of Figure 4 below shows the most distinct terms (one- and two-word phrases) for eight topics in separate LDA models of the UCGSES text questions. The bars show how often different student groups – specifically doctoral students, academic master's students, and students in D.V.M., M.D., Law or GSM programs – were mostly closely matched to a topic relative to the number of UCGSES responses from that student group. Besides student group based on program and degree objective, Graduate Studies analyzed differences in topic associations with other student characteristics (e.g. student sex) but found no meaningful differences to report.

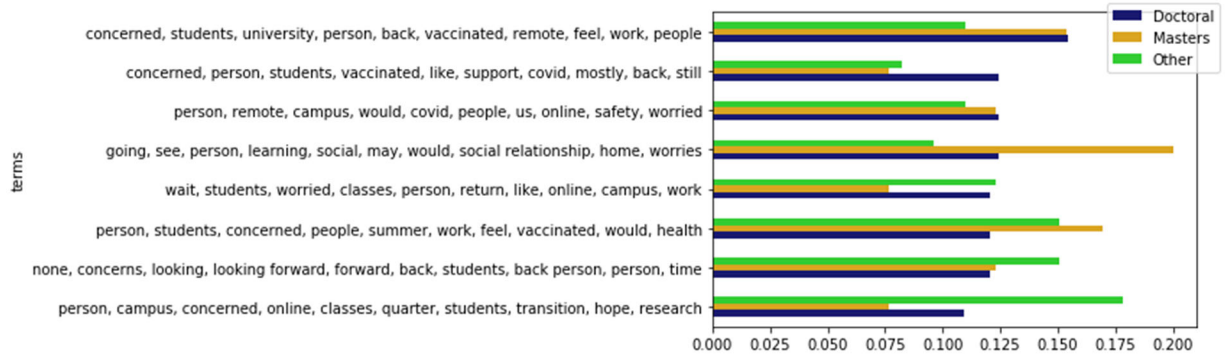
It can be difficult to interpret LDA topics. But by varying the length of phrases and the number of topics in each model, it is possible to observe some differences between different student types. For instance, in most LDA models the responses to the "Transition" question were spread more evenly over the topics, especially for doctoral students. The "Student Support" question had more responses focused in fewer topics. Observations about LDA results from the "Student Support" and "Transition" questions follow Figure 4.

Figure 4. Latent Dirichlet Analysis Results of UCGSES Text Responses

Student Support*: "Please share any additional comments about your experiences and suggestions about how your program and/or university can better support students like you during the COVID-19 pandemic."*



Transition: *"Please share any concerns you have about preparing for the transition from remote learning and research back to in-person learning and research."*



Student Support

- In the "Student Support" question, models using longer (2- and 3-word) phrases resulted in more convergence in topics across the different groups of students.
- Using more categories (e.g. 15+ instead of 8) resulted in more divergence in topic association of master's students from doctoral and professional students.
- Across all students, many responses to the "Student Support" question touched on financial hardship and the need for more support and funding. This might have caused the LDA model to deemphasize terms related to financial hardship and identify other phrases as more distinctive.
- Reading a sample of "Student Support" responses with the LDA results in mind, doctoral students seemed more likely to focus on access to faculty (advising and time), teaching (especially as a TA), and funding. Master's students seemed more focused on program resources, program administration, teaching (especially interaction in online courses), and jobs/careers.
- Some students raised issues relating to diversity, equity and inclusion in this section.
- Many responses shared unique student experiences that did not neatly fall into any category.

Transition

- In different models of the "transition" question, longer phrases resulted in master's students diverging from the doctoral and professional students, and a greater number of topics caused more divergence across all three groups of students.
- It is possible that student "transition" needs are different for students in relatively short master's programs (i.e. many not returning), more strongly cohorted professional programs (e.g. 1L vs 3L law students, or clinical training for M.D. and D.V.M. students), and doctoral research programs that are relatively longer, open-ended and flexible.
- Doctoral and professional students wrote frequently about research facilities, access to campus, and campus safety.
- Many students had opinions on the effectiveness and quality of remote and in-person education – both pro and con – as well as Zoom etiquette (mute, raise hand feature, etc)
- A lot of students wrote about the need for masks and vaccines. Responses were highly supportive of adopting or mandating these practices, a prominent part of the campus response to COVID-19 in the transition to in-person instruction in the current academic year.

3. UC Davis Student Progress Assessments

Academic graduate students at UC Davis typically complete an Annual Progress Report (APR) with their major professor or graduate advisor in the online Student Progress Assessment (SPA) tool. CGPSA requested information about whether information about the impacts of COVID-19 could be inferred from SPA questionnaires, specifically the sections on plans for student financial support and the faculty member's overall assessment of student progress.

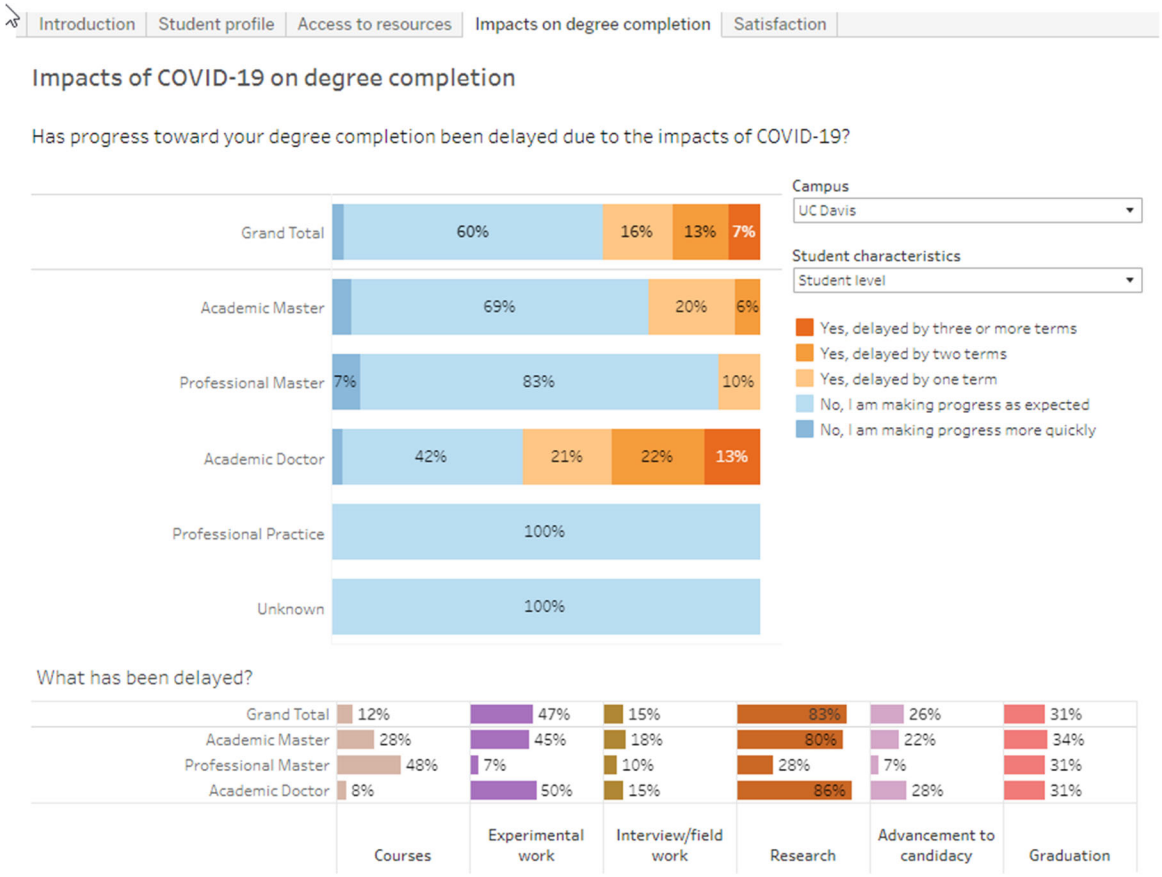
Of more than 4,400 APR responses, fewer than 20 mentioned COVID-19 or related terms ("pandemic", "coronavirus", etc) in the section on student financial support plans. Surprisingly, APRs that mentioned COVID-19 were much more likely to be positive for the student – including grant funding to research the pandemic directly, or funding for student relief as part of the campus, state or federal response to COVID-19. However, there were a few students in this small group of responses who explicitly indicated COVID-19 had negatively affected their ability to secure funding or otherwise continue graduate study.

About 10% of comments in the SPA section on overall assessments mentioned COVID-19 explicitly. Of those, a very common phrasing was to indicate for satisfactory progress "despite" or "in spite of" the pandemic – resilience was a theme. That said, many overall assessments in SPA described difficulties from COVID-19: inability to travel to field research locations, changing living conditions (e.g. moving out of state to live with family), family job loss, and other issues. Many others reported delays due to restrictions on facilities, and other setbacks.

4. Delays in Academic Progress

Evidence from UCGSES responses and SPA annual progress reports indicate that COVID-19 caused delays in academic progress for many students. The UC Info Center dashboard on Graduate student UCGSES COVID-19 and remote learning dashboard ("Impacts on degree completion") is particularly detailed on this point (see Figure 5 below).

Figure 5. Reproduction of UCGSES COVID-19 Impacts Dashboard



A complement to self-reported data is administrative data on degree completion, time to degree, and doctoral advancement to candidacy. Unfortunately these data are difficult to analyze and interpret at present. Time-to-degree or –candidacy statistics are currently biased downward because they omit students who have not yet graduated or advanced to candidacy, but will do so later due to COVID-19. Completion rate statistics are similarly biased upward because they do not account for future attrition of currently enrolled students due to COVID-19. A detailed analysis of particular cohorts is possible (e.g. time to candidacy of doctoral students starting in 2017 or 2018, of whom more than 50% would typically advance to candidacy by now). But program-level variation of enrollment, qualifying examination pass rates, and the mid-year emergence of COVID-19 make this analysis currently intractable. The congruence of self-reported data and administrative data is a question worth returning to when more data are available.