UNIVERSITY OF CALIFORNIA, ACADEMIC SENATE

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Mary Gauvain
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Chair of the Assembly of the Academic Senate
Faculty Representative to the Regents
University of California
1111 Franklin Street, 12th Floor
Oakland, California 94607-5200

September 8, 2020

CHAIRS OF SENATE DIVISIONS AND COMMITTEES:

Re: Systemwide Review of the Report of the Online Undergraduate Degree Task Force

Dear Colleagues,

Last year, the Academic Council formed an Online Undergraduate Degree Task Force to examine the implications of possibly creating full-time, online, undergraduate degree programs at UC. Its July 2020 report provides three distinct policy options with the strengths and weaknesses of each.

- Option 1 (UC-Quality On-campus Degree) would prohibit fully remote undergraduate degree programs and require at least one-third of all major units and also one-third of total units to be earned in non-remote courses;
- Option 2 (UC-Quality Remote Degree) would support the formation of entirely remote degree programs, but require that programs meet all ordinary expectations for a UC degree;
- Option 3 (Instruction-Only Remote Degree) would allow fully remote degree programs that satisfy the same coursework expectations as UC's face-to-face programs, but may not guarantee equivalent out of classroom opportunities.

Please submit comments to the Academic Senate office at SenateReview@ucop.edu by December 9, 2020 to allow us to compile and summarize comments for the Academic Council's December 16 meeting. As always, any committee that considers these matters outside its jurisdiction or charge may decline to comment.

Please do not hesitate to contact me if you have additional questions.

Sincerely,

Mary Gauvain, Chair
Academic Council

Encl:

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UNIVERSITY COMMITTEE ON EDUCATIONAL POLICY (UCEP)
John Serences, Chair
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Assembly of the Academic Senate
1111 Franklin Street, 12th Floor
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Phone: (510) 987-9466
Fax: (510) 763-0309

Tuesday, July 14, 2020

RE: Report from task force on fully online degree programs at the University of California

Dear Kum-Kum,

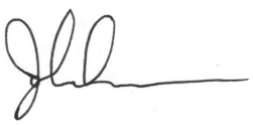
The task force was composed of members from each campus and focused on evaluating the desirability and feasibility of entirely online degree programs. The task force was formed partly in response to a "first of its kind" proposal from UC Irvine for an entirely online degree program in business administration proposed in 2018-2019. During review of this program proposal, the UC Committee on Educational Policy (UCEP) identified several key questions about the ability of fully online programs to deliver a UC-quality degree, and the current task force set about addressing these issues in more depth. Importantly, the task force was not tasked with providing a more general assessment of the effectiveness of online courses. Indeed, the majority of the task force felt that online courses can be highly effective in many areas and are becoming an increasingly important part of the UC's offerings.

In the context of our charge, the task force debated many policy options ranging from requiring an on-campus presence for at least some portion of a student's degree program, to allowing fully online programs that focus on instruction as opposed to replicating the on-campus experience.

In the end, each of the three policy proposals received substantial support from different members of the task force, but members did not come to consensus on a particular policy that all wanted to recommend. Instead, we offer these proposals as a framework for debate during what we hope will be a robust system-wide review in Fall 2020.

We ask that UCEP be provided feedback from the system-wide review to determine next steps. At chair-elect Gauvain's discretion, the task force might also be asked for more input.

Sincerely,



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Chair UCEP,
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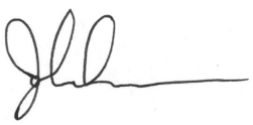

John Serences,
Chair UCEP,
Chair Task Force on Online Undergraduate Education
jserences@ucsd.edu

Online Undergraduate Degree Task Force, July 14th, 2020.

Executive Summary

The members of the task force debated the merits and feasibility of offering fully remote undergraduate degree programs in which students would not attend any physical University of California (UC) campus. Our guiding principles were that a UC degree is characterized by access to world-class faculty who are actively engaged in research and by exposure to intellectual and cultural diversity. We considered prior research on the effectiveness of online learning and research about the importance of an on-campus experience. We also spoke extensively with consultants from within and outside the UC system, including administrators at the UC, experts in evaluating online learning outcomes, and administrators/faculty who have designed and implemented online courses and degree programs. On the basis of these deliberations, the task force has provided three distinct policy options so that the strengths and weaknesses of each can be considered (see here for a visual summary outlining the key characteristics of each policy proposal).

- Policy 1: UC Quality On-campus Degree: Policy 1 would prohibit fully remote undergraduate degree programs and emphasizes the importance of on-campus experiences that are outside of the classroom (see Appendix E for additional discussion). All campuses would be required to create a designation for remote courses, and no fewer than one-third of all units credited to a student's major AND no fewer than one-third of all units credited towards satisfying a student's general education requirement must be in courses not designated as remote.

- Policy 2: UC Quality Remote Degree: Policy 2 would support the formation of entirely remote degree programs, but would set a high bar for ensuring that these programs meet all of the ordinary expectations for a UC degree, as outlined in Appendix C. The remote degrees would not have a different name from the face-to-face (F2F) degrees. Under this policy, the expectation is that only a small number of programs would be delivered *fully* remotely. However, many programs may be able to deliver much of their curriculum remotely, but with a significant proportion of their courses taught on campus (e.g. labs, performance-based classes), ensuring that students have access to the outside-the-classroom opportunities that are a key part of the UC experience (e.g., research, cultural activities).

- Policy 3: Instruction-Only Remote Degree: Policy 3 would allow fully remote degree programs that satisfy the same coursework expectations as the UC's F2F programs but do not guarantee equivalence with respect to outside-the-classroom opportunities. The content and rigor of the coursework would be equivalent in remote and F2F programs, and the courses would be taught by the same faculty, but students could complete a remote degree program without ever setting foot on a campus. This degree may currently be feasible in a limited number of disciplines, and there are risks to success if the programs do not provide adequate learning interactions with peers. Students in the remote programs would receive a distinct degree (e.g., "Bachelor of Arts in Economics, Online").

- Explicitly Not Recommended: Remote degrees taught by a separate set of faculty ("Separate-Faculty Remote Degrees"). Some state university systems have created online-only degree programs in which the courses are developed and run by a separate class of instructors (typically contract-based temporary instructors who are not active in research). These programs often have poor learning outcomes and low completion rates. Moreover, access to faculty engaged in cutting-edge research is a

central pillar of a UC degree program. Thus, if the State of California wishes to create such programs, they should not be administered by the University of California, the nation's top public research university system.

Note that developing instruction-only remote degree programs (Policy 3) is not mutually exclusive with either on-campus degrees (Policy 1) or UC-quality remote degrees (Policy 2). Irrespective of which policies are preferred, the task force concluded that it would be very costly to offer online UC undergraduate degree programs at scale, and that lower cost alternatives would subject students to financial risk due to poor graduation rates and may compromise the quality expected from a UC education.

Charge of task force and background [Appendix A for expanded discussion]

This task force was charged with addressing the feasibility and desirability of offering fully remote degree programs at the University of California (UC). At the UC, campuses already innovate in the online space, and high-quality online courses have become an increasingly important part of curriculum delivery for many degree programs across the UC. However, in the 2018-2019 academic year, UC Irvine proposed an entirely online BA in Business Administration that would preclude students from attending face-to-face classes on campus. This triggered a "first of its kind" review from the UC Committee on Educational Policy (UCEP), which found that the proposal raised fundamental questions about what we consider to be the essential qualities of a "UC-quality" education. In both the local campus review and in UCEP's review, reviewers were unsure whether a program in which students were, by design, excluded from campus and from the opportunities open to their on-campus peers could fulfil our broad educational mission. This task force was established to think through that question and to determine whether a fully-remote undergraduate degree was consistent with the University's educational goals and, if so, what special constraints, if any, should be imposed on the formation and structure of any such programs.

The task force agreed from the start that individual online courses can be effective, especially if they leverage recent technological advances that support immersive and interactive student experiences. However, as revealed by the recent shift to emergency remote learning due to COVID-19, designing and implementing high quality remote courses that adhere to the defining characteristics of a UC education would require a substantial investment of time on the part of faculty and substantial financial support from the state. This is particularly true if we prioritize student success, since remote programs that prioritize access and cost-reduction typically report low completion rates and poor learning outcomes for many students.

Definitions [Appendix B for expanded discussion]

Remote learning/instruction: Online delivery of courses, with no requirement for students to be physically present on campus. In contrast to the emergency distance learning that has occurred during the COVID-19 pandemic, remote instruction is intentional, with courses designed specifically to be delivered online with development assistance and significant investments of time by faculty and resources by the UC.

Face-to-face (F2F) learning/instruction: Courses that have a substantial proportion of contact hours in a F2F setting. This includes traditional lecture/lab/performance courses that are entirely F2F, but it also can include courses that may have an online component such as asynchronous online lectures combined with F2F discussion sections or labs.

Premise for recommendations [Appendix C for expanded discussion]

At the start of our deliberations about remote degree programs, the task force leaned heavily on the *Characteristics of Educational Quality At the University of California*, which were written and approved by the University Committee on Educational Policy (UCEP) in 2011. The full set of characteristics are available in Appendix C, but they emphasize:

- Access to expertise of UC faculty
- Access to the research-based environment inherent in the UC system
- Exposure to intellectual and cultural diversity
- Exposure to the comprehensive experience of a UC education above and beyond the transmission of information from any single class or activity

The full set of characteristics would need to be met by any UC-quality remote degree program (Policy 2) and many, but not all, of the characteristics would need to be met by instruction-only remote degree programs (Policy 3).

Summary of Research

One component of a UC-quality education is the effective transmission of information by UC faculty. Previous research indicates that remote learning can effectively transmit knowledge if adequately supported. Our review of other programs found that completion rates and learning outcomes can be very good for high-cost programs with small class sizes and significant interaction between students and faculty (though programs with these attributes appear to be offered primarily at the graduate level). However, outcomes are poor for low-cost, high-enrollment programs, particularly for vulnerable groups of students. Further, much remains unknown: there are very few large-scale studies of peer institutions that carefully control for preexisting differences between students in remote versus F2F courses. Institutions comparable to the UC have been reluctant to offer degrees via remote-only instruction, so there is little data available for an apples-to-apples comparison. In addition, much of the long-term value of a college education derives from outside-the-classroom experiences, such as opportunities for research, chances to form career-enhancing relationships with peers, and the ability to discover new areas of interest outside of the student's major.

- Effectiveness of remote learning [Appendix D for expanded discussion]
- Impact of experience outside of the classroom [Appendix E for expanded discussion]

Tradeoffs Between Access, Cost, & Quality [Appendix F for expanded discussion]

One oft-stated goal of remote learning is to expand access and to reduce costs for students who might not otherwise be able to attend a UC campus in person. Allowing a student to remain at home while enrolled in a UC program might save money on room and board, which could be substantial in some cases. However, because online courses are costly to produce, maintain, and operate, financial viability is achieved either by charging significantly higher fees for a "high touch" and interactive learning experience (e.g., $70k/year for the UC Berkeley Data Science Master's Degree), or by having much larger class sizes, offering a less interactive experience, and by employing a higher percentage of temporary adjunct instructors rather than core faculty of

the university (e.g., the Arizona State University (ASU) model; see[1]). Notably, this latter type of program typically features low degree completion rates, subjecting a large population of students to substantial financial risk.

Admissions to fully remote degree programs [Appendix G for expanded discussion]

If fully remote degree programs were offered, how might admissions to such programs operate, and how would proposed admissions processes impact students at the UC? Because students who currently have difficulty accessing a UC campus are also likely to be those students who, on average, face the biggest challenges in a remote learning ecosystem, we conclude that it would be difficult to identify students who would both choose a fully remote degree program and also succeed. More generally, the task force felt that remote programs may end up targeting people whose life circumstances prevent them from realizing the full set of opportunities afforded by the UC, thus creating a "second class" of students who might prefer to be on campus but who can only participate in remote-only degree programs.

Costs, tuition/fees, personnel, and infrastructure required for remote degree programs (Policies 2 and 3). [Appendix H for expanded discussion]

The adoption of entirely remote degree programs would require a substantial re-envisioning of how campus services are provided in the online arena, ranging from online counseling and career support services to developing effective mechanisms for maintaining academic integrity. These services are provided as a part of a student's tuition and are integral to the success of an online degree program, and online versions would require new personnel and infrastructure. In addition, the up-front cost of producing online content is high in terms of resources and time, and updating a course year-after-year is prohibitively costly (e.g., even extremely well-resourced programs, such as the School of Business at UCI, only allow a maximum of 10% of the online content to be updated annually). The task force concluded that offering high-quality remote degree programs under Policies 2 and 3 would require a substantial up-front investment to build out the required infrastructure, along with sustained increases in funding for more faculty and staff to design, implement, and update content.

Oversight and concerns about the gradual migration of program to entirely remote delivery [Appendix I for expanded discussion]

Given that delivering high-quality remote courses requires deliberate design and adequate support, the task force had concerns about programs gradually migrating to a remote-only degree without adequate review. Here we discuss oversight procedures to monitor for this kind of migration, and describe a mechanism for comprehensive review of degree programs.

Revenue-based incentives for fully remote degree programs [Appendix J for expanded discussion]

While poor outcomes (e.g., low degree completion rates, excessive time to completion) are relatively straightforward and inexpensive to address in the F2F format (e.g., by updating classes, alternating instructors, etc.), remote courses can be difficult to update (e.g., video-based lectures are often integral to online courses but can be time-consuming and costly to revise). If remote programs are driven by revenue-based incentives, it

[1] Bailey, A., Vaduganathan, N., Henry, T., Laverdiere, R., & Pugliese, L. (2018). Making Digital Learning Work—Success Strategies from Six Leading Universities and Community Colleges. Boston, MA: Boston Consulting Group.

will be difficult to ensure that quality remains high and to respond rapidly if poor outcomes become evident. This is especially important because some remote degree programs have low degree completion rates, incurring costs both to learners and to the reputation of programs (e.g., see Appendix F).

For these reasons, revenue-based incentives to both programs and to individual course creators and instructors should be stated explicitly in all proposals, and periodic oversight by Divisional committees and/or a UC-wide committee should be instituted to ensure that any revenue-based incentives do not unduly influence programmatic decisions to the detriment of educational effectiveness

Appendix A: Charge of task force and background

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Charge of online undergraduate degree task force, 2019-2020

The Online Undergraduate Degree Task Force will look at the implications of creating full-time online undergraduate degree programs at the University of California. The Task Force will consider the following issues, with an understanding that the scope of topics could expand:

- What are the key differences that constitute an on-line degree category? Is it the same degree program just delivered in a different modality? Or are there a deeper set of differences, particularly with respect to access to resources and exposure to research and intellectual/cultural diversity.
- How can the quality of instruction, learning, and discussion be maintained in a full time online degree?
- How can the UC guard against an online degree being viewed as "lesser-than" a traditional degree?
- What are the costs and benefits associated with generating and maintaining high quality online degree courses, in terms of infrastructure and personnel including TA support?
- Will the courses serve the targeted student populations (to include, but not limited to geographically/physically isolated or otherwise geographically/physically bound students)?
- How will the UC provide the long-term support for these programs as technology and best-practices in teaching change over time?
- How will admissions and financial aid processes be adapted?
- What are the rights of students who pursue online degrees in terms of access to campus resources? If different than students taking courses on campus, what are the implications of this for student fees?

As part of its deliberations, the Task Force may invite UCOP administrators to some meetings to offer information and insights on the development of such degrees. The Task Force will offer preliminary recommendations to the Chair of Academic Council by the end of March 2020. At that stage, the Chair of the Task Force and Council will decide on how best to involve administrative personnel on campuses and at UCOP to meet with the Task Force and seek their comments on the recommendations. It is expected the Task Force would submit a final set of recommendations to Academic Council by June 2020.

Background

Online courses have long been offered at the UC, most recently via the Innovative Learning and Technology Initiative (ILTI) since 2013[2] and via local campus initiatives in both fully online and hybrid varieties. Through the sponsorship of ILTI and campus-led initiatives, faculty on all UC campuses are engaged in considering how their teaching can take advantage of a range of modalities, tools, and spaces. As certain innovative UC faculty have demonstrated, not all learning is platform dependent and faculty will continue to innovate pedagogically to provide high-quality teaching and learning within the context of remote learning, including the adoption of new digital technologies such as immersive environments that augment participation in online spaces.

Although remote courses have been successfully integrated into the core of UC's teaching mission, the UC Irvine School of Business recently proposed a 'first of its kind' fully remote undergraduate degree program. This proposal generated a great deal of interest as a potential mechanism to expand access and to save money for students and the UC, and was the main impetus for the formation of the present task force. However, further scrutiny revealed several concerns about admissions procedures and the educational

[2] https://www.ucop.edu/innovative-learning-technology-initiative/_files/ilti-project-statement.pdf

experience for an entirely remote cohort of students [see Appendix G] and the ability of this kind of program to effectively expand access [see Appendix F]. Moreover, a review of the literature and of other remote-only programs suggests that developing the kind of high quality online content that was typical of the UC Irvine courses does not cost less than F2F instruction - quality online instruction requires substantial and sustained investments in digital infrastructure, instructional design, staffing and technology [see Appendix H].

This task force is committed to providing creative solutions to enrich the vibrant intellectual community that is the University of California. The locus of this community has traditionally been the university campus, with increasing support through connections that extend digitally. The sudden move to emergency remote instruction caused by COVID-19, coupled with widespread dissatisfaction with the results of this experience, helped clarify the educationally valuable elements of the on-campus experience that are currently most challenging to replicate in remote format. In addition, the emergency pivot highlighted the need to maintain crucial components of the UC undergraduate experience across all programs, regardless of mode of delivery, going forward. That said, this report does not focus on how to better deliver emergency remote learning. Instead, we focus on whether, in normal times, a remote-only program can satisfy the core characteristics of a UC degree[1] [see Appendix C].

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Appendix B: Definition of key terms

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A decade or more ago, the distinction between a traditional face-to-face (F2F) degree program and an online degree program was clear: a student either took classes in a lecture hall at their home campus, or they watched pre-recorded (asynchronous) lectures at home and never set foot on campus. Over the last decade, this distinction has become harder to make, as many courses now use online tools for at least a portion of content delivery. For example, nearly all courses make use of an online learning management system (LMS) for distributing assignments and grades and other materials (e.g., supplementary lectures). Many other courses combine asynchronous online lectures with F2F discussion sections. Still other courses are entirely online with no F2F component.

Given the increasingly blurred distinction between F2F and online modalities, as well as recent experiences with a rushed pivot to entirely online courses, we offer the following definitions that will be used in the report.

Remote learning/instruction: online delivery of courses, with no requirement for students to ever be physically present on campus. Unlike the recent pivot to “emergency remote learning”, normal remote instruction is intentional, with courses designed specifically to be delivered online, leveraging the platforms and technology to engage students in a meaningful instructional/learning community. Instead, remote courses require instructional design assistance and significant investments of time by faculty and resources by the UC to ensure that students receive effective and engaging content.

In-person or face-to-face (F2F) learning/instruction: courses that have a substantial proportion of contact hours in a F2F setting. This includes traditional lecture/lab courses that are 100% F2F, but it also can include courses that may have an online component such as asynchronous lectures combined with F2F discussion sections or labs. A key characteristic of F2F is the need to provide classroom or lab space to students, and to provide services that support an on-campus presence.

While we offer these definitions for the sake of clarity, we acknowledge that deciding which category a course falls into may be challenging in some situations. One helpful rule of thumb to keep in mind: if a course requires reserving a physical space on campus, then it is F2F; if it does not, then it is remote.

Contrast with emergency remote learning during COVID-19 pandemic. The task force feels strongly that the rapid shift to online-only learning following recent campus closures due to COVID-19 should not be used as a template for moving forward in this domain in the future. Instead, ‘emergency remote instruction’ is simply what most faculty were capable of doing following the sudden closure of campuses in Spring term 2020 – a precipitated delivery of instruction, without much direction and very little design. There is widespread agreement that this was an overwhelmingly unsatisfying and suboptimal outcome, and this sentiment is backed up by data from the UC Undergraduate Experience Survey(UCUES) during Spring term 2020. Thus, the task force felt that drawing strong conclusions in favor of or against the value of online education from these recent experiences would be inappropriate.

Contrast with distance/correspondence learning and MOOCs. Online learning is often associated with other models of “distance” or “correspondence” learning and with massive open online courses (MOOCs). In these models, students can receive course content via paper, DVD, or online streaming (e.g. Université TÉLUQ, Open University, or MOOC.org). However, unlike the remote courses that we envision to reflect best-practices

in pedagogy, the design of these courses prioritizes scalability at the expense of high-touch, interactive formats that encourage intellectual exchanges with classmates and instructors.

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Appendix C. Premise for recommendations

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The task force was charged with evaluating the potential risks and benefits to the University's educational mission of undergraduate degree programs that are delivered wholly by remote learning, and we base our policy recommendations on existing principles that define the "UC experience" or a "UC-quality degree". Thus, as a starting point, we agreed as a task force that all programs, remote or F2F, should meet expectations of the "UC Experience", which is defined in a previous report from UCEP that was part of the UC *Commission on the Future, Education and Curriculum Working Group*[3]*:*

Characteristics of Educational Quality At the University of California (here).

The UCEP report centers on two key factors:

- the background and expertise of UC faculty and students
- the rich research-based environment inherent in the UC system, composed of ten top-tier public land-grant research institutions.

Furthermore, the report emphasizes that a UC-quality degree comes not from a single course or activity but from the comprehensive experience of a UC education. As part of that comprehensive experience, the report suggests that UC courses, majors and programs should:

- provide ample opportunity for closely mentored relationships with faculty who enrich their teaching with insights gained from first-hand involvement in research and who can supervise students as they pursue independent research
- empower students with skills in the acquisition, assimilation, and synthesis of knowledge that will foster intellectual independence, creativity, leadership, and entrepreneurship
- exploit the important social, cultural and intellectual contributions enabled by having a diverse population of students
- develop interpersonal skills that will contribute to success through collaboration and build sensitivity to the diversity of domestic and international cultures

Based on these considerations, the UC Experience and obtaining a UC-Quality Degree hinge critically on fostering relationships between students and instructors, providing access to enrichment opportunities outside of the classroom, enabling access to research opportunities, and maximizing exposure to intellectual and cultural diversity.

The task force notes that this report is nine years old and some of the language and/or points may need updating. However, the core values articulated in this document are deeply embedded in the history of the UC, and the task force feels that they accurately reflect the UC's research, teaching, and service missions.

[3] Commission on the Future, Education and Curriculum Working Group, "Characteristics of Educational Quality," endorsed by UCEP, March 17, 2011.

F2F degree programs (Policy 1) and UC-quality remote degree programs (Policy 2) would require that all characteristics of a UC degree be satisfied. Instruction-only UC degree programs (Policy 3) requires only a subset of these characteristics.

Characteristics of a UC Degree, as articulated by UCEP. While programs designed under all policies could potentially meet the full set of characteristics, this table indicates the *minimum* requirements under each of the three proposals.

Characteristic of Educational Quality at the University of California	UC Quality On-Campus Degree (Policy 1)	UC Quality Remote Degree (Policy 2)	Instruction-Only Remote Degree (Policy 3)
Are developed by UC faculty with quality assurance monitored through the UC Academic Senate course and program review process.	x	x	x
Address content reflecting the most current research in their field of study.	x	x	x
Are delivered under the direction of UC Senate faculty, and include substantial contributions from lecturers, graduate students, and other academic positions filled by individuals who understand and can communicate the unique perspective of the UC research university environment.	x	x	x
Operate at an intellectual level appropriate to the high abilities of the student body.	x	x	x
Include appropriate and substantive student-instructor and student-student interaction.	x	x	x
Provide a framework by which students achieve objective standards of knowledge and competence appropriate to the field of study or profession.	x	x	x

Empower students with skills in the acquisition, assimilation, and synthesis of knowledge that will allow nimble adaptation to the ever-changing intellectual environment, and foster intellectual independence, creativity, leadership, and entrepreneurship.	x	x	x
Develop interpersonal skills that will contribute to success through collaboration.	x	x	
Develop sensitivity to the diversity of domestic and international cultures that will enhance students' capacity to operate within and advance American and global society.	x	x	
Provide ample opportunity for closely-mentored relationships with faculty and other University-affiliated personnel that allow students to pursue independent research, creative activity, or service to society related to their field of study.	x	x	
Foster the abilities to interpret and organize information critically, analytically, effectively and transparently, and to maintain intellectual integrity and high ethical standards and intellectual honesty.	x	x	x
Can contribute indirectly to student awareness of, and involvement in, the perspective unique to the culture of a public research university, with special insight for how that perspective enriches their disciplinary and general education.	x	x	
Promote intellectual curiosity and an appreciation for knowledge, including knowledge for which practical applications are not immediately apparent.	x	x	x

Support achievement of the basic University of California missions related to teaching, research and public service.	x	x	x

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Appendix D. Research on effectiveness of remote content delivery

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Prior research on the effectiveness of remote content delivery should be interpreted with the understanding that pedagogical approaches and available technologies are rapidly evolving. Thus, much of the prior research does not reflect current best-practices and likely does not accurately characterize the effectiveness of well-conceived and adequately resourced remote instruction that can be offered today.

Past research suggests that in community college settings, all types of students experience worse outcomes in remote learning compared to traditional F2F courses, with the strongest declines for males, younger students, Black students, and students with lower grade point averages (Xu and Jaggars, 2014[4]; Xu and Xu, 2019[5]).

However, data from remote summer courses at the UC (UC Irvine in particular) suggest that at-risk college student populations (low-income students, first-generation students, low-performing students) do not necessarily suffer additional performance penalties when engaged in remote learning (Fisher et al., 2020[6]). This suggests that students who are, on average, better prepared can succeed in thoughtfully designed online coursework. It is important to note, however, that students self-select into online or in-person instruction in these courses; students who would be adversely impacted by online instruction may simply be avoiding those courses.

A 2009 meta-analysis found that courses that combine both online and F2F components (i.e., “hybrid” courses) may provide the best outcomes (Means et al., 2010[7]). The study found that “on average, students in online learning conditions performed modestly better than those receiving face-to-face instruction.” However, this effect was driven mainly by hybrid/blended courses rather than fully online courses, and the hybrid/blended courses “often included additional learning time and instructional elements not received by students in control conditions.” The few rigorous studies covered in this meta-analysis in which fully online courses led to better outcomes than F2F courses were atypical courses (e.g., short courses focused on teaching a specific skill).

Note that these studies focused on performance in individual remote courses and not in degree programs where every course is online. Thus, it is unclear if students who have positive experiences in an individual online course will have the same success if taking all courses online. Moreover, the data from these studies are correlational, so it is difficult to estimate the extent to which results reflect differences between online and F2F learning versus differences between students who opt to enroll in online courses instead of F2F courses. Finally, these classes do not measure outcomes beyond the classroom, such as subsequent pursuit of advanced degrees or career placement. Thus, these data likely present a very optimistic view of the success of online courses, especially given that most students do not take all of their courses online during any given

[4] Xu, D. and Jaggars, S. (2014) Performance Gaps between Online and Face-to-Face Courses: Differences across Types of Students and Academic Subject Areas. The Journal of Higher Education, 85(5).
[5] Xu, D. and Xu, Y (2019) The promises and limits of online higher education: Understanding how distance education affects access, cost, and quality. Report commissioned by the American Enterprise Institute.
[6] Fischer, C., Xu, D., Rodriguez, F., Denaro, K., Warschauer, M. (2020) Effects of course modality in summer session: Enrollment patterns and student performance in face-to-face and online classes. The Internet and Higher Education, 45.
[7] Means, B., Toyama, Y., Murphy, R., Bakia, M., Jones, K. (2010) Evaluation of evidence-based practices in online learning: A Meta-Analysis and Review of Online Learning Studies. U.S. Department of Education.

quarter/semester. It is less clear how performance scales with the number of concurrently enrolled online courses, or how a fully online experience might impact outcomes post-graduation.

Summary points about the quality of the evidence and some key interpretive issues.

- It is difficult to do controlled research on the effectiveness of different teaching modalities. In particular, although random assignment is possible in principle, it is rare in practice.
- As an alternative to random assignment, researchers sometimes attempt to statistically control for preexisting differences between students who take online versus F2F courses (e.g., controlling for age, ethnicity, socioeconomic status, prior GPA). Such statistical controls are important, even if they are not perfect (e.g., because we do not know or have a measure of all the factors that might differ). However, many studies do not provide these statistical controls. This will be highlighted in the summaries of individual studies below.
- The literature has many studies that compare online and F2F versions of a single course or a small group of courses. It is not clear whether the results of such studies will generalize. Meta-analyses can be used to aggregate the results from many such studies, which in principle could allow broader generalization. However, even if a meta-analysis finds a difference (or a lack of difference) on average, this does not mean that the results will generalize to all types of courses, all majors, all universities, or all types of students.
- There are some studies that examine a large number of courses across a whole college/university or across multiple courses/universities. These studies are much more likely to yield generalizable results and to be less prone to publication bias. Thus, most of our efforts have been focused on such studies (even though there are not as many of these papers, and many are published as technical reports rather than as peer-reviewed journal articles). Despite the advantages of these studies, there are still serious questions about whether the results will generalize to the UC system and what the results imply across students, courses, and majors.
- Pedagogical methods and technical support for online course design and delivery have improved dramatically over the past decade and will likely continue to improve. Consequently, we prioritized information from recent studies of programs that have made substantial investments in online courses and exemplify best practices. However, this means that we can expect similar results in the UC system only if we also make substantial investments and adopt best practices.

Annotated references

Means, B., Toyama, Y., Murphy, R., Bakia, M., & Jones, K. (2009). Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Learning Studies. US Department of Education Technical Report.

https://www2.ed.gov/rschstat/eval/tech/evidence-based-practices/finalreport.pdf

Although this US Department of Education study is now over a decade old, it has had a large impact. It is a meta-analysis of studies published between 1996 and 2008, which initially examined over 1000 empirical studies of online learning. Only 45 studies were considered sufficiently rigorous to be included in the meta-analysis. The study found that " on average, students in online learning conditions performed modestly better than those receiving face-to-face instruction." Apparently, this inspired a large increase in the development of remote learning classes. However, this effect was mainly observed in hybrid/blended courses rather than fully online courses, and the hybrid/blended courses "often included additional learning time and

instructional elements not received by students in control conditions." The few rigorous studies in which fully online courses led to better outcomes than F2F courses were atypical courses (e.g., short courses focused on teaching a specific skill).

Xu, D., & Xu, Y. (2019). The Promises and Limits of Online Higher Education (Report commissioned by the American Enterprise Institute).

Expansive critical review of the literature on the effectiveness of remote instruction. Perhaps the most comprehensive and up-to-date review that we found.

Key Findings:

- About 50% of post-secondary schools are focused on expanding online courses as part of their strategic growth plans.
- Some populations thrive in the online environment; however, these courses have, on average, higher dropout rates (3-15% higher).
- Some students opt to take online courses when they feel like they can "teach themselves" the material. In contrast, many students stressed the importance of taking F2F courses when they needed stronger guidance.
- Discusses Deming and Bettinger studies suggesting that cost savings to the university come primarily through increases in class size (consistent with reports on ASU and other institutions). Modest increases in class size (~10%) did not produce significantly worse academic outcomes [caveat - this was at a for-profit university] [1,2].
- However, the same data set that Bettinger analyzed also showed that online courses are less effective in promoting student success [3].
- In addition, development costs for high-quality online courses range from $10,000-$60,000 per course, which can offset (or reverse) any potential savings [4,5]
- For example, at the University of North Carolina System, well-designed online courses were actually ~6% *more* expensive to design compared to F2F courses, and the cost of delivering online courses was also about 6% higher [caveat, while higher, this 6% increase may not reach statistical significance in this data set: 6,7].
- As with other studies, most studies that focus on outcomes find worse performance in remote compared to traditional courses. This is generally true even in experimental studies that attempt to draw causal conclusions [8].

Cited references from Xu and Xu (2019):

1. Eric Bettinger et al., "Virtual Classrooms: How Online College Courses Affect Student Success," *American Economic Review* 107, no. 9 (2017): 2855–75.

2. David J. Deming et al., "Can Online Learning Bend the Higher Education Cost Curve?," *American Economic Review: Papers & Proceedings* 105, no. 5 (2015): 496–501.

3. Bettingeretal.,"VirtualClassrooms."

4. Greville Rumble, “Modeling the Costs and Economics of Distance Education,” in *Handbook of Distance Education*, ed. Michael Grahame Moore and William G. Anderson (Mahwah, NJ: Lawrence Erlbaum Associates, 2003).

5. Russell Poulin and Terri Taylor Straut, *Distance Education Price and Cost Report*, WICHE Cooperative for Educational Technologies, February 2017, https://wcet.wiche.edu/sites/default/files/Price-and-Cost-Report-2017_0.pdf.

6. The differences in costs to deliver a distance course and a non-campus course does not reach statistical significance though. For more information, see North Carolina General Assembly, *University Distance Courses Cost More to Develop Overall but the Same to Deliver as On-Campus Courses*, April 28, 2010, https://ncleg.net/PED/Reports/documents/DE/DE_Report.pdf.

7. A total of 1,979 new courses were developed since 2004 at the University of North Carolina.The Evaluation Team Further Limited the sample to 801 courses developed between 2008–09 and 2009–10 to determine the most recent costs for course development. Finally, the evaluation team stratified the sample by funding category and type (distance vs. on campus) and randomly selected courses for each category and type. The report includes a more detailed explanation of the sampling methodology in Appendix A. See North Carolina General Assembly, *University Distance Courses Cost More to Develop Overall but the Same to Deliver as On-Campus Courses.*

8. A much broader literature used randomized assignments to compare between online and face-to-face training sessions across a variety of settings. For example, see Giuseppe Bello et al., “Online vs Live Methods for Teaching Difficult Airway Management to Anes- thesiology Residents,” *Intensive Care Medicine* 31, no. 4 (April 2005): 547–52; LaRose, Gregg, and Eastin, “Audiographic Telecourses for the Web”; Katrina A. Meyer, “Face-to-Face Versus Threaded Discussions: The Role of Time and Higher-Order Thinking,” *Journal of Asynchronous Learning Networks* 7, no. 3 (September 2003): 55–65; Rosalie Ocker and Gayle Yaverbaum, “Asynchronous Comput- er-Mediated Communication Versus Face-to-Face Collaboration: Results on Student Learning, Quality and Satisfaction,” *Group Deci- sion and Negotiation* 8, no. 5 (September 1, 1999): 427–40; Yara Padalino and Heloisa Helena Ciqueto Peres, “E-Learning: A Comparative Study for Knowledge Apprehension Among Nurses,” *Revista Latino-Americana de Enfermagem* 15, no. 3 (2007): 397–403; and Peterson and Bond, “Online Compared to Face-to-Face Teacher Preparation for Learning Standards-Based Planning Skills.” The majority of these studies suggest that student course grades do not differ between the online and face-to-face context. However, results from these studies cannot address the challenging issues inherent in maintaining student attention and motivation over a course of several months, and we therefore focus on studies on semester-length college courses only. For more information, see Cassandra M. Hart, Elizabeth Friedmann, and Michael Hill, “Online Course-Taking and Student Outcomes in California Community Colleges,” *Education Finance and Policy* 13, no. 1 (2018): 42–71; and William G. Bowen et al., “Interactive Learning Online at Public Universities: Evidence from a Six-Campus Randomized Trial,” *Journal of Policy Analysis and Management* 33, no. 1 (2014): 94–111.

Bailey, A., Vaduganathan, N., Henry, T., Laverdiere, R., & Pugliese, L. (2018). Making Digital Learning Work—Success Strategies from Six Leading Universities and Community Colleges. Boston, MA: Boston Consulting Group.

https://edplus.asu.edu/sites/default/files/BCG-Making-Digital-Learning-Work-Apr-2018%20.pdf

See Inside Higher Ed summary here:
https://www.insidehighered.com/digital-learning/article/2018/04/12/online-programs-can-contribute-better-outcomes-lower-costs-and

See commentaries by both supporters and critics at
https://www.insidehighered.com/digital-learning/article/2018/04/18/online-education-observers-see-glowing-report-intriguing

This study was conducted by ASU and the Boston Consulting Group. It focused on 6 success stories, including 3 research universities (Georgia Tech, ASU, Univ of Central Florida) and 3 community colleges. These were all institutions that have extensively promoted online education, have invested heavily in infrastructure for producing and delivering high-quality online courses, and have followed a variety of best practices (which are discussed heavily in the report, but are beyond the scope of our task force). Other institutions were invited to participate, but "a number of colleges and universities that we initially contacted declined to participate, saying that they lacked the necessary data and resource availability to do the work."

Key Findings:

- The best retention/graduation rates were observed in students who took a mix of online/hybrid and traditional courses
- Grades were examined in a very coarse manner by asking what percentage of students achieved an A, B, or C rather than a D, F, or W (the *ABC rate*). ABC rates were better for online courses than for F2F courses at some institutions and worse at others (with consistently worse ABC rates at community colleges). The best ABC rates were observed in hybrid ("mixed-modality") courses (but this was a small difference).
    - They mention that several studies find a "digital paradox": higher retention/graduation rates but lower grades for online courses.
- At Georgia Tech, there was some evidence that the use of *adaptive courseware* (technology that adjusts the difficulty of the material depending on student performance) reduced performance gaps for low-income and minority students in online courses.
- Online courses led to increased overall enrollment (meaning that more students were served by the colleges/universities without increasing the "physical footprint" of the campuses).
- Online courses also improved access for some groups.
    - Online courses increased access for low-income students: "...the proportion of fully online students who were Pell Grant recipients was consistently at least 5 percentage points higher than the corresponding proportion of Pell Grant recipients among students who took all of their courses in face-to-face settings in a given semester."
    - Online courses also increased access for older students: "On average, online undergraduate students were six to eight years older than their on- campus, face-to-face-class counterparts in our study's four-year institutions."
    - Online courses also increased the proportion of women students: "Women...are more likely to take courses online than men are..."
    - Online delivery has led some institutions to have more than 3 terms per year, which provides flexibility when "work and personal schedules do not align with the traditional beginning of a college semester."

- It is extremely difficult to quantify the costs of providing online and F2F education. However, they made a credible attempt, and they found that online delivery reduced overall costs relative to revenues: “the savings for online courses ranged from $12 to $66 per credit hour, a difference of from 3% to 50% of the average credit hour costs.”
    - Part of the savings is a result of increased student-to-faculty ratios. For example, online courses at ASU are 100% larger than F2F courses in lower-division courses and 50% larger than F2F courses in upper-division courses.
    - Part of the savings comes from a lower reliance on tenure-track, full-time, permanent faculty in online courses. “At one major university, part-time or adjunct faculty taught 85% of online courses, compared with 70% of on-campus courses. In upper-division courses, the ratio of tenure- track to non-tenure-track faculty was roughly 40/60 for campus-based courses and 10/90 for online courses.”
    - Part of the savings comes from reduced expenditures for constructing and maintaining on-campus classrooms and labs.
- They stressed the importance of best practices, quality control, and investments in infrastructure. As quoted from the report, their specific recommendations included:
    - Take a strategic portfolio approach to digital learning. The most successful institutions have developed a portfolio of digital delivery models tailored to the particular needs of different student populations.
    - Build the necessary capabilities and expertise to design for quality in the digital realm. Effective online learning depends on courses and curricula that are properly designed for the unique challenges and opportunities of the modality. Institutions committed to achieving online outcomes that are similar to or better than those for face-to-face courses must make significant investments in instructional design, learning science, and digital tools and capabilities.
    - Provide the support that students need to succeed in fully online learning. To help students meet the challenges that many of them experience when learning online, institutions need to offer a network of remotely accessible support structures adapted to the needs of online learners.
    - Engage faculty as true partners in digital learning, and equip them for success. One common barrier to success in digital learning is faculty skepticism. Institutions need to engage and support faculty in the digital learning journey—for instance, by giving faculty a voice in key decisions, providing professional development opportunities, and fostering a culture of pedagogical innovation.
    - Fully commit to digital learning as a strategic priority, and build the infrastructure necessary to ensure lasting impact. Higher-education leaders who want their digital initiatives to continue long after they have departed from the scene need to attract a groundswell of support among faculty and build an infrastructure that ensures high-quality instruction and sustained momentum (such as a central team that can manage the digital learning portfolio).
    - Tap outside vendors strategically. The institutions in our study identified their strategic goals and then carefully determined which functions or capabilities they wanted to develop in-house versus outsourcing. Often, institutions can advance innovation, expand capabilities, and increase enrollment faster through successful partnerships than by trying to build everything in-house.
    - Strengthen analytics and monitoring. In the digital realm, faculty and administrators have access to a cornucopia of data that they can use to engage in continuous improvement. To harness that

data, institutions must develop strong research and analytical capabilities, along with the reporting systems necessary to make the data actionable.

Key Limitations:

- This study made no attempt to control for differences in students who enroll in different course types (see p. 21 of the report). However, there is no reason to believe that "better" students took the online courses and that performance/retention would have been substantially worse for online than F2F if students had been randomly assigned to online versus F2F courses.
- They used a very coarse measure of learning (ABC rates) rather than a fine-grained measure such as GPA.
- This study made no attempt to determine whether online courses were particularly advantageous or disadvantageous for specific groups of students. The study described next provides evidence that online courses work well for some types of students and poorly for others.
- This study was conducted by and with institutions that are heavily invested in online delivery and may therefore be biased toward positive results.

Di Xu & Shanna S. Jaggars (2014) Performance Gaps between Online and Face-to-Face Courses: Differences across Types of Students and Academic Subject Areas, The Journal of Higher Education, 85:5, 633-659, DOI: 10.1080/00221546.2014.11777343

Approach: "Using a dataset containing nearly 500,000 courses taken by over 40,000 community and technical college students in Washington State, this study examines the performance gap between online and face-to-face courses and how the size of that gap differs across student subgroups and academic subject areas." The study did an excellent job of accounting for potential preexisting differences between students who take online versus F2F courses. Specifically, because many individual students took a mix of online and F2F courses, they were able to use an individual fixed effects approach to examine within-person differences between online and F2F courses over a period of 5 years (avoiding comparing different groups of students in online and F2F versions of a given course). "Importantly, the model is now effectively comparing between online and face-to-face courses taken by the same student."

Background: "The literature on online learning suggests that online courses require students to assume greater responsibility for their learning; thus, a successful online student may need high levels of self-regulation, self-discipline, and a related suite of metacognitive skills…" "Students also agree that online courses require more personal responsibility and motivation…indeed, the students most likely to select online coursework seem to have higher levels of academic ability and motivation in comparison to peers who select a fully face-to-face course schedule…"

Key Findings:

- All types of students performed more poorly in online courses than they did in face-to-face courses.
- This effect was not impacted by whether the students had previously taken online courses (partly but not fully addressing the possibility that students do poorly in online courses because they do not have experience with such courses) or by the number of hours the students were working at

income-producing jobs that term (addressing the possibility that students do poorly in online courses because they take them when they are busier with earning an income)
    - The effect was larger when the individual fixed effects approach was taken than when student-level factors were not considered in the model. In other words, studies that do not control for differences among students who take online versus F2F courses may overestimate the performance of students in online courses.
- Some subgroups were more negatively impacted by online courses than others.
    - "Males, younger students, Black students, and students with lower prior GPAs" were more negatively impacted by online courses than their peers.
    - "When student subgroups differed in terms of their face-to-face course outcomes (e.g., white students outperformed ethnic minority students), these differences tended to be exacerbated in online courses"
    - "students with a stronger academic background had a narrower online performance gap, while students with weaker academic skills had a wider online performance gap"
- The negative impact of online relative to F2F courses differed across disciplines.
    - The biggest negative impacts were in Social Sciences, English, Math, and Humanities, lowest in Education, Mass Communication, Health/PE, and intermediate in CS and Natural Sciences.

Key Limitations:

- These were community college students.
- Data were collected between 2004 and 2009, and distance learning technologies have substantially improved since then.

Bettinger, E., & Loeb, S. (2017). Promises and pitfalls of online education. Evidence Speaks Reports, Vol 2, #15. (Report from the Brookings Institution).

See also conference paper at
http://www.cesifo-group.de/dms/ifodoc/docs/Akad_Conf/CFP_CONF/CFP_CONF_2014/Conf-ee14-Hanushek/Papers/ee14_Loeb_new.pdf

Approach. This study compared online and in-person courses from "over 230,000 students enrolled in 168,000 sections of more than 750 different courses at DeVry University." "Online and in- person classes follow the same syllabi, use the same text books, and have the same class sizes." They used a clever way of accounting for differences in students between online and F2F courses that involved variation across DeVry campuses and across terms in which courses were available online versus F2F.

Key Findings:

- "…we find that taking a course online reduces student grades by 0.44 points on the traditional four-point grading scale…".
- Performance in subsequent courses in the same subject area or for which the current course is a prerequisite is .3-.4 GPA points worse when the current course is online versus F2F.
- "The negative effects of online course taking are concentrated in the lowest performing students. …for students with below median prior GPA, the online classes reduce grades by 0.5 points or more, while for students with prior GPA in the top three deciles we estimate the effect as much smaller and, in fact, we cannot tell whether there is negative effect at all…"

Key Limitations:

- This is a for-profit university, so the ability to generalize to UC is not clear.

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Appendix E. Research on intrinsic benefits of experiences during remote learning

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In addition to evaluating the effectiveness of remote instruction, there is also a large literature about the intrinsic benefits to being a participant in the F2F community on campus as opposed to learning from home.

The gold standard of such research would be an apples-to-apples, randomized controlled study of students who complete highly comparable study programs, some in an online-only environment and others in a largely face-to-face environment. However, due to the difficulties associated with randomized assignment, studies of this sort are absent from the literature.

That said, there is a substantial body of research about the value of co-curricular experiences for college students, but very little of it is focused on comparing 100% remote cohorts to on-campus cohorts. Instead, the research primarily focuses on the perceived value of on-campus experiences.

One of the most consistent findings in this research is that student success and student satisfaction hinge on the kinds of rich social entanglements both within and beyond the classroom that it is harder to provide in a remote environment [although technological resources for supporting social engagement in entirely online courses is rapidly improving]. For example, in *How College Works* (Cambridge: Harvard University Press, 2017), Daniel Chambliss and Christopher Takacs argue that students forget much of what they learn in their undergraduate classes with astonishing rapidity. Thus, college serves two purposes, to convey information and to make future learning easier, and as a mechanism for building relationships and shaping lifelong attitudes about work habits. Most importantly, students learn how to learn.

As with research on the effectiveness of remote learning, many of the studies focused on the benefits of the college experience are likely to only partially generalize to students at the UC. For instance, the Chambliss and Takacs study discussed above comes from a small North Eastern liberal arts college. This is a very different kind of institution from the UCs, serving a different community and with different aims. Nonetheless, the arguments made about the intangible benefits of a college education deserve serious consideration when considering the different policy proposals outlined in this report.

Annotated References

- *How College Affects Students: 21st Century Evidence that Higher Education Works* (Wiley, 2019), Matthew Mayhew et al. (eds.). This is a sweeping survey of studies of higher education, the third in a series of such studies dating back several decades. In particular, it highlights how often past certainties about what worked in Higher Education become less certain going forward, and how often summaries of the best available research on any aspect of what colleges are trying to do end in uncertainty.
- Daniel Flynn's "Baccalaureate Attainment of College Students at 4-Year Institutions as a Function of Student Engagement Behaviors: Social and Academic Student Engagement Behaviors Matter," *Research in Higher Education* 55.5 (2014). One of the towering figures in the study of "student engagement" is Vincent Tinto, whose work, although it predates the emergence of online education, suggests a number of issues we should bear in mind when exploring the possibility of remote-only degrees at UC. Tinto argues that "it is the individual's integration into the academic and social systems of the college that most directly relate to his continuance in that college." While many studies have examined Tinto's arguments, Flynn's 2014 paper claims to be the first to substantiate them with

"nationally representative longitudinal data" (491). He looks at the impact of student "academic engagement" and "social engagement" (which may be challenging, at least for many students, to develop in the context of remote-learning) on student success.

Some key findings include that for first-year students, "persistence is more strongly associated with …social engagement behaviors than with…academic engagement behaviors" (485), that "both academic and social engagement behaviors (measured in the third year) significantly impact baccalaureate attainment even when controlling for field of study, individual and institutional control variables" (486), and that "students who report behaviors that are reflective of both academic and social engagement in the period of time following the first-year are more likely to earn baccalaureate degrees" (490).

One key sentence, captures the main message:
"In essence, both academic engagement behaviors (meeting with faculty informally, talking with faculty outside of class, meeting with an advisor, and participation in study groups) and social engagement behaviors (attending arts/drama performances, participating in clubs, and participating in sports) contribute to 4-year postsecondary degree attainment net of student-level and institution-level factors."

- Kevin O'Neill and Tzy Horng Sai, "Why not? Examining college students' reasons for avoiding an online course" *Higher Education* 68:1 (2014). This paper looks at why some students opt to take a face-to-face course over an online course even at some considerable cost in terms of scheduling convenience. They point out that many "digital natives" have considerable skepticism about online education compared to the face-to-face experience. Regardless of whether or not these students' suspicions are well-founded, this paper highlights the point that for many students online degrees will be seen as "second tier" options compared to the face-to-face degree programs.
- Zehui Zhan and Hu Mei, "Academic self-concept and social presence in face-to-face and online learning: Perceptions and effects on students' learning achievement and satisfaction across environments," *Computers & Education* 69 (2013). This was one of the few papers that we identified that directly addressed online education vs face-to-face on these issues. As the Flynn paper above would suggest, they find that online students feel significantly less "social presence" than their face-to-face peers, and that feelings of social presence are significantly predictive of student success in the online environment.
- Youngju Lee and Jaeho Choi, "A review of online course dropout research: implications for practice and future research," *Educational Technology Research and Development* 59:5 (2011). This gives an overview of studies that have looked into the higher dropout rates in online education than face-to-face. In addition to the dropout issue, this paper also highlights the importance of students' emotional and social integration.
- Pamela Duke Morris and Linda M. Clark, "Using NSSE Data to Analyze Levels of Engagement of Distance Learners," *The Quarterly Review of Distance Education* 19:2 (2018). Study using an unusually broad-based data set with a wide scope of questions. Overall the results suggest that online students are less engaged—particularly socially and emotionally—than their face-to-face peers. They are less likely to seek mentoring or to mentor others, less likely to attend exhibitions or other arts events, less likely to seek out so-called "high-impact" opportunities such as study-abroad and so forth.
- Susan Komives, "Engagement with Campus Activities Matters: Toward a New Era of Educationally Purposeful Activities." *The Journal of Campus Activities and Practices and Scholarship* 1:1 (2019). This

is something of a polemic, but useful in surveying many of the “high-impact” practices that campuses are currently trying to prioritize as paths to student success. This is the piece that provides a guide to the relevant findings in Mayhew et al.’s *How College Affects Students* (see p. 20f.).

- Danielle Hammond and Candice Shoemaker, “Are There Differences in Academic and Social Integration of College of Agriculture Master’s Students in Campus Based, Online and Mixed Programs?” *NACTA Journal* 58:3 (2014). While this paper is looking at master’s students rather than undergraduate, it provides a useful examination of the differential impacts on student social integration of online and face-to-face education.

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Appendix F. Tradeoffs between expanded access, class size, cost, and student success

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When examining remote learning models within the UC and at other institutions, it became apparent that there is an inherent tradeoff between, on the one hand, the laudable goals of expanding access and reducing cost, and on the other, metrics of student success such as overall completion rate.

Arizona State University is a prominent example of a system that has focused on expanded access and has adopted a modified tution/fee structure. Courses are taught primarily by a separate cohort of adjunct instructors hired on an ad-hoc basis, much larger class sizes (up to 100% larger on average for lower division courses), and a different tuition/fee structure (Bailey et al., 2018)[8]. However, success rates are low, with less than 50% of first-time, full-time students completing a degree program after 6 years (here). Moreover, depending on the specific degree program, the cost to the students is not substantially lower, with courses costing between $530-$1153 per credit/hour for remote learning (here) compared to approximately $450 (resident) or $1150 (non-resident) per credit/hour for F2F courses (based on 12 credits/semester, here). Thus, the major cost saving for remote students is likely to come in the form of reduced room and board. This savings could be substantial, especially because several UC campuses are located in high rent areas. However, the relatively modest difference in tuition/fees, coupled with lower completion rates, means that even students living at home will experience considerable financial risk when enrolled in a remote learning degree learning program that has a low degree completion rate.

Recently developed remote Master's programs at UC Berkeley and Georgia Tech, despite not being remote undergraduate degree programs, also provide a useful case study to highlight the tradeoffs between expanded access, lower cost, and student success. For example, UC Berkeley reports graduating 95% of students in their Online Master of Information and Data Science program, which features class sizes of approximately 30 students. UCLA's online MS programs in engineering have similarly high degree completion rates around 95%, have an average class size of 16, and are consistently ranked among the top programs in the country. In contrast, published reports indicate that students in Georgia Tech's Online MS in Computer Science program (with has larger class sizes) finish classes at a rate of 62% (Goodman et al., 2018, 2019)[9]. According to faculty at UC Berkeley, their high completion rate is due, in part, to the ability of faculty and TAs to detect learner difficulties and to intervene on a case-by-case basis, a difficult task in larger online environments. Risks may be especially acute to students undergoing mental or physical health difficulties. Also, risks of falling behind may be exacerbated by demographic differences in online students. Joyner and Isbell (2019)[10] report that online learners are more likely to represent an older (median age = 38), actively employed (90%), demographic who may be less practiced at daily study, may lack knowledge of new educational technologies, and may have greater weaknesses upon entry to a graduate program.

[8] Bailey, A., Vaduganathan, N., Henry, T., Laverdiere, R., & Pugliese, L. (2018). Making Digital Learning Work—Success Strategies from Six Leading Universities and Community Colleges. Boston, MA: Boston Consulting Group.
[9] Goodman, J., Melkers, J., & Pallais, A. (2019). Can online delivery increase access to education?. Journal of Labor Economics, 37(1), 1-34. Goodman, J., Melkers, J., & Pallais, A. (2018). An Elite Grad-School Degree Goes Online. Education Next, 18(3).
[10] Joyner, D. A., & Isbell, C. (2019, June). Master's at Scale: Five Years in a Scalable Online Graduate Degree. In Proceedings of the Sixth (2019) ACM Conference on Learning@ Scale (p. 21). ACM.

In addition, smaller online classes permit faculty and TAs to maximize interaction with students through video conferencing and chat room hours, while also making it easier for students to develop rapport and learn from one another. More generally, smaller online classes minimize risks to quality and institutional reputation.

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Appendix G: Identifying and admitting students who could thrive in a fully online degree program

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Aside from issues related to access, cost, and student success, there are other inherent challenges for developing remote degree programs at the UC:

- In exploring the detailed data reported in the US News and World Report analyses of the best online-BAs (here), a substantial proportion of courses are "upskilling" technical courses for people who have already entered the workforce and are looking for some additional training that will fit into their busy work/life schedules. This is definitely a valuable resource for some students, but it would be fundamentally different from UC undergraduate degrees that typically involve general education, breadth courses, and extensive engagement in research and other activities and that do not involve targeted vocational training.
- Designing an admissions process that would allow the UC to identify people who would flourish with remote learning would be challenging, as students will likely fall into one of (at least) several categories. Some students may not be able to access F2F, so remote learning might be their only option, irrespective of whether they are well equipped to learn using this modality. Some other students may explicitly believe that remote is preferable to F2F. Yet another group of students may actually perform better with remote learning compared to FTF. Many students may well fall neatly into one of these categories, but in general, students who are most likely to perform well with remote learning are also those who are most able to succeed with F2F learning and vice versa. More generally, people who apply for programs that are exclusively administered via remote learning may largely be those people whose life circumstances preclude them from taking full advantage of the exposure to research, extracurricular events, and associations that make the "UC-experience" something significantly different from degrees at other institutions. This may inevitably result in a group of students who could not make their first choice the F2F experience and were forced to opt for the remote program.
- One goal of remote degree programs is to expand access. However, It is not clear if this promise is realistic, for a number of reasons. Research and interviews with educators indicate that there are no “economies of scale” available in remote learning that allow additional students to be added to high-quality programs without a corresponding budgetary increase. But even if there is an increased instructional budget that allows the shift to remote programs to represent a net increase in the UC student body, it may be the case that qualified students who would be able to attend a campus may outnumber those who are unable to do so. Thus, careful studies should be carried out before implementing fully online degree programs to assess how they will impact student access and student desires to participate in on-campus or remote programs (see more discussion in Policy 3).

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Appendix H: Costs, tuition/fees, personnel, and infrastructure required for remote degree programs

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Dr. Di Xu, associate professor at the UC Irvine School of Education, advised that there were three primary areas that required consideration for an effective remote degree program. First, the program would need to recognize that remote coursework generally demands higher levels of self-discipline on the part of students; second, the program as a whole (not just individual instructors) would need to cultivate opportunities for interpersonal interaction in order to create a sense of community; and third, students would need full access to student support campus resources, including but not limited to tutoring and academic counseling.

While there are different models for how to effectively design remote courses, the initial development is typically the most resource intensive. For instructors who have never taught online, extensive instructional development (ID) time is required to determine the course structure, record the lectures, and set up the course in the LMS. Under a model where content is delivered in part through recorded lectures (supplemented with other activities), course development might require:

- Approximately 250 development hours. With instructional design at approximately $75/hour, a new course would cost approximately $22,000 for ID time.
- In addition to ID time, instructors sometimes receive funding for a course release to support course design and development. The cost of a buyout varies, but is typically charged at ⅛ of a faculty member's base salary, or approximately $15,000 for a faculty member making $90,000/year.
- Potential additional costs: closed captioning and transcribing, software and platform licensing (for example video or podcast hosting), and any other resources that might be required for a particular course.

While the above numbers can serve as a reference point, it is important to note that the course development process is being continuously streamlined, and, depending on design choices, not all courses will require as many resources.

In addition to course development, course material needs updating on an annual basis, particularly given the unique ability of UC faculty to bring cutting edge research into their classrooms. Unlike F2F courses, which can be updated relatively easily by rewriting lectures or re-envisioning how material is presented in class, updating remote courses is typically far more resource intensive. For example, lecture content needs to be revised, just as in a F2F course, but then new online content needs to be recorded, produced, closed captioned, etc. For these reasons, the UCI School of Business, which has adopted a particularly production-heavy approach, only allows instructors to update 10% of their course material year-after-year due to resource constraints. Other programs may choose alternative, less resource intensive, approaches to online course development. However, funds would be needed from the state to support the development and updating of remote content, especially if one goal is to expand access via entirely online degree programs.

Distinctive costs associated with the online environment are also required to prevent academic dishonesty and platforms to create a sense of community in the virtual sphere. For example, following the switch to emergency remote learning in Spring 2020, faculty at all campuses expressed overwhelming concern about the ability to maintain academic integrity, particularly given concerns that online proctoring services may unreasonably violate student privacy and create major inequities for students who do not have a quiet, clear space to take exams. Consistent with this recent anecdotal evidence from the UC, the University System of Georgia provides

a model for its online programs that does not place the majority of responsibility on any individual instructor's shoulders to ensure academic integrity. Instead, the University System of Georgia centralized this function to increase effectiveness by significantly investing in infrastructure to support academic integrity, such as staff to monitor online forums as well as providing thorough training for instructors in the appropriate use of such tools as "Turnitin." Without such investment, and without retraining all faculty in best practices for giving exams and grading, the online environment remains vulnerable to a wide variety of means to undermine academic integrity. Indeed, many of the steps required to ensure academic integrity in the online arena might also positively reshape how F2F courses are implemented as well.

Students in remote-only degree programs may need higher levels of self-directed learning skills and time management skills[11]. This may be harder for students who have circumstances that make them more likely to engage in remote-only learning in the first place. Thus, the UC should build on the expertise of faculty who have innovated to provide adequate scaffolding in their courses, and should develop remote support mechanisms to help students develop proficiency in these areas.

Students in remote-only programs would have limited access to tutoring services and academic counseling because these services are traditionally based on F2F interactions on campus. These services would need to be scaled and fundamentally re-imagined in the online arena if proper support is to be provided. Based on efforts at UC Irvine's School of Business, this process will likely be extremely resource intensive. In addition, a failure to effectively re-imagine these services may widen existing disparities unless remote tutoring/counseling/etc. services are created to work as well as in-person services.

Students who take all their courses via remote-learning may face greater challenges in creating a sense of community, which is critical for success (see Appendix D and Appendix E). This is not to say that creating community in the remote domain is not possible, but it is currently more challenging and will require additional resources beyond those currently offered at most campuses (training instructors, training students, exploiting emerging technologies to provide effective interactive platforms, keeping class sizes small, etc.). In addition, the community that can be developed in the context of remote-learning is likely not as expansive as the community that a student would encounter on campus. In a real or a virtual classroom, the community consists of the other students in that class. But on campus, the community might be lab members, graduate students, members of campus groups related to career, political, and other interests. Thus, even if a remote course is able to build a lively online community, the scope and diversity of that community might be limited. For these reasons, and others, the UC should consider creative structural solutions to provide adequate exposure to intellectual and cultural diversity beyond just the "remote classroom". Such solutions might include investment in online learning platforms that allow and promote opportunities for interaction outside of and across individual courses.

Issues specific to UC-Quality Remote Degree programs (Policy 2)

Tuition and Fees

Admissions and tuition decisions related to entirely online degrees are complex, and any fully remote program would need to justify its fee/tuition structure and clarify issues around student access. Some considerations are:

[11] Xu and Xu, *The Promises and Limits of Online Higher Education. 2019, page 26.*

- ensuring access to health care (including mental health care)
- ensuring access to career advising
- ensuring access to courses outside of their major program so that students can satisfy general education requirements and take advantage of the social, cultural, and intellectual richness of UC campuses
- ensuring access to campus if a student decides to pursue an in-person option

Currently, tuition and some fees are set by the Regents, with the remaining fees set by local Divisions. Tuition and fees set by the Regents are the same for all students and cannot be easily waived. Certain Division-level fees could presumably be waived for an online-only student, but might be offset by particular costs associated with the online-only format, or might end up denying or limiting student access to crucial campus resources, such as those listed above.

Other considerations for UC Quality Remote Degrees

Jaggars and Xu[12] found that community college students who engage in remote learning during their first term of instruction are significantly less likely to complete their degree program. This may reflect a self-selection bias, and it may not generalize to students at the UC, but this finding highlights the importance of giving students the option to switch to F2F if they incorrectly assume that they will succeed in the remote format. Accordingly, if UC-quality remote degrees are implemented (Policy 2), campuses should develop a plan to integrate some proportion of remote students into the main campus should they decide to transition (or vice-versa for students who may want to migrate from F2F to fully online programs).

Issues specific to Instruction-only Remote Degree programs (Policy 3)

To achieve a high level of quality, the task force strongly believes that we cannot adopt a model like that of ASU, in which a separate cohort of lower-wage instructors teach the online courses (see Appendix F). Instead, the content and rigor of remote courses must be the same as in our F2F classes, which can be achieved only by having the courses taught by regular UC faculty.

Although many of the courses in our current F2F majors are taught by lecturers rather than by Senate faculty, the vast majority of our upper-division courses are taught by Senate faculty. To provide the kind of education that students and employers expect from the UC, upper-division courses in our remote degree programs must be taught by world-class scholars who are deeply immersed in state-of-the-art research and creative activities.

Adoption of instruction-only remote degree programs would therefore necessitate:

- Additional UC faculty FTEs to avoid increasing class sizes, along with startup costs for these faculty
- New spaces for the additional faculty to carry out their research and creative work
- Additional graduate students to assist faculty in research and serve as TAs

[12] Jaggars and Xu, *Online Learning in the Virginia Community College System.* 2010. Report commissioned by the Virginia Community College System.

- New staff to support the faculty and graduate students and to provide services such as advising that will be required by the additional students

Tuition and fees

In theory, tuition might be lower for remote degrees than for our F2F programs, but most universities have seen little or no cost savings from remote degree programs (e.g., The University System of Georgia, or the UC Irvine School of Business online degree for transfer students).

- Some aspects of online courses can be inexpensively scaled to large numbers of students. For example, if students are watching lecture videos and engaging in automated exercises, there is very little difference in cost between delivering the videos to 50 students or delivering them to 5000 students. In addition, online courses do not require classroom buildings. However, these are only a fraction of the total cost of instruction.
- In practice, high-quality online courses are more expensive to create and maintain than F2F courses (e.g., because of the cost of producing and updating compelling lecture videos and interactive activities). Moreover, many online courses require activities that increase in cost proportionately with the number of students (e.g., online discussion sections or hand-grading of written assignments). As a result, online instruction is typically not more efficient than F2F instruction (i.e., it does not offer the same quality for a lower cost).

While instruction-only remote degree programs would not need to replicate as much infrastructure as UC-quality remote degree programs, additional funding, perhaps from fees, would still be required to deliver necessary services online, such as:

- Advising
- Tutoring
- Career counseling
- Physical and mental health services

Other considerations for Instruction-Only Remote Degrees

- Financial aid: It is possible that the instruction-only remote programs would enroll a higher proportion of financially disadvantaged students than our current F2F programs - this would increase the financial aid costs and would need to be factored into funding. In addition, remote programs would be well suited for part-time students, and these students would need to be accommodated by the financial aid model.
- Content development/updating: Although some remote courses already exist in our F2F programs, the creation of remote degree programs would require that most participating departments create a large number of remote versions of their classes. All the courses required for a given major—including courses taught by other departments—would need to be available online. This would be a large and expensive undertaking: As we have learned from the COVID-19 pandemic, faculty cannot just take an existing F2F class and deliver it remotely without dramatically degrading the quality of the course (draft survey results here).
- Faculty who develop and teach remote courses would require intensive training. Although some time may be saved via repeat offerings of already developed online courses, the initial design and

production of lecture videos and online activities is time-intensive, and faculty cannot spend more time on online courses than they spend on F2F courses without compromising the UC's reputation as a world-class research university and the associated economic value. As a result, the university would need to add large numbers of educational design and production staff to assist the faculty in remote course creation and maintenance.

- While production costs are high, they might be reduced if the remote courses were shared across all UC campuses. That is, the cost of producing a given course would not need to be repeated across multiple campuses. However, sharing of courses would not be easy for upper-division courses if each campus has its own online programs with separate degree requirements. For more discussion, see the section on *Centralized versus Campus-Based Organization* (Appendix K).
- If the remote programs enrolled a sufficiently large number of students, it would be desirable to provide physical spaces for in-person academic, social, and cultural activities (e.g., peer mentoring, student art shows) in communities across the state. These might be, for example, rented spaces in retail areas.

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Appendix I: Oversight and concerns about the gradual migration of program to entirely remote delivery

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[Note that if Policy 1 were adopted, programs could not gradually migrate to entirely remote delivery because a minimum on-campus residency requirement would be imposed. Thus, the following only applies to Policy 2 and Policy 3].

The formation of degrees based entirely on remote learning represents a departure from traditional UC degree programs, and recent experiences with UCI suggest that some programs seek to migrate online without local or system-wide review by the Academic Senate. The task force recommends that measures be put in place to prevent "stealth" remote majors from being developed without adequate Senate oversight to ensure the quality of the program. Even if we establish rigorous standards for "new majors," this will be of little use if a currently existing major can be migrated to "remote learning only" status without triggering any moment of review (at the local or the system-wide level). If we want to ensure that remote programs, to the extent that they are allowed to proceed, are of the highest quality, then policy needs to be in place to trigger comprehensive review as majors approach some critical threshold of the percentage of courses that are offered online.

In addition to concerns about stealth majors, the high initial cost of developing remote courses and uncertainties that surround fully remote degree programs at institutions like the UC motivate the need for additional oversight (at least in the initial years of program development).

For these reasons, the task force recommends that, in addition to a full program review by the appropriate Divisional Academic Senate committee (i.e. CEP, UGC, or COCI), a system-wide review should be triggered for all new remote degree programs or if the proportion of coursework in an existing program that either may or must be completed in a remote format increases to more than 50% of all required courses in the major. This system-wide oversight would add another layer of approval beyond the campus' own Divisional oversight committee---with a term of at least six years and staggered rotation of its members. It would be constituted from at least one member from every campus. That member can communicate the task force findings to departments on their home campus aspiring to fully remote degrees, and they would bring to the committee unanticipated or unresolved problems to seek collective wisdom on solutions and best practices. The committee would decide that when launched, what special data collection and feedback the remote degree program would look for, and at what frequency. Most importantly, programs that are new or that exceed this 50% bound should include a justification and an explanation of how the qualities that define a UC degree will be actively maintained with an increase in the proportion of classes offered via remote learning.

If there are signs of trouble where remedial measures appear not to work, this committee can recommend to the campus to discontinue the program. In such cases, the committee must devise measures to protect the students in the remote degree program so they may continue their studies without unexpectedly large disruptions.

The term of six years would allow the committee to monitor new remote degree programs that are launched within two years of its formation until their conclusion, which seems like the minimum term over which this central committee can accumulate data, identify problems and workable solutions, and assess outcomes after graduation.

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Appendix J. Revenue-based incentives for fully remote degree programs

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In any format, whether remote or F2F, a program that is only moderately successful based on standard pedagogical metrics (e.g., time to completion, completion rate) may be tolerated to a greater degree if it generates large revenues. However, in the typical case of F2F, problems identified by standard metrics can be readily addressed, both quickly and at low cost, by changing instructors, methods of instruction, or course offerings. In the case of remote courses, where revenues and/or lower tuition for students may be a central motivator, it is difficult to adaptively update an existing degree program: depending on the pedagogical approach, frequent changes can be expensive and time consuming. Thus, there was concern that different incentive structures may lead to programs tolerating lower quality in remote degree programs than would be deemed acceptable in a F2F setting.

Financial incentives can conflict with the promotion of quality at multiple points in the life cycle of a class or degree program, from course conception where faculty may be incentivized to create new online content via cash payments, to faculty compensation for off-load remote instruction, to revenues harvested by instructional units. For these reasons, revenue-based incentives should be stated explicitly in all proposals, and periodic oversight by Divisional committees and/or a UC-wide committee should be instituted to ensure that any revenue-based incentives are not unduly influencing programmatic decisions. Ideally, incentives and compensation should be format-neutral: any extra financial incentives offered to faculty, above and beyond normal compensation, for the development of online materials should also be offered for F2F and vice versa.

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Appendix K. Centralized versus Campus-Based Organization for Remote Degree Programs

Remote degree programs (under either Policy 2 or Policy 3) could be implemented either with a distributed organization in which each campus develops and administers its own online degree programs (just like our existing F2F programs) or via a single, centralized body that draws on faculty from the individual campuses.

A main strength of a campus-based approach is that it could easily make use of the existing organizational structure of our F2F programs. For example, the Economics department at UCSB could create a remote degree that had the same requirements as their F2F degree, and tuition money would flow to the campus, the college, and the department in the same ways as F2F tuition money.

By contrast, a single systemwide remote Economics degree would require creating a new set of degree requirements. This would be nontrivial, because the courses required for a given major are often quite different across campuses, especially upper-division courses. As a result, it would be difficult for the faculty at individual campuses to create courses that would work well in both their campus-specific F2F program and in the systemwide remote degree program. For example, UCSB covers the topic of insurance in a single Economics of Insurance course, but this topic is distributed across multiple different courses at UCD (e.g., Health Economics, Public Economics). Thus, we could not simply create online versions of Economics courses that are currently taught on different campuses and stitch them together into a single, coherent, systemwide remote Economics major. The same is true of virtually every discipline. Instead, we would need to create many new courses that do not currently exist on any campus, and these courses would primarily serve remote students rather than being appropriate for both remote and F2F students.

A centralized organization for remote degree programs would also complicate the flow of money. If students were admitted to a campus-independent remote Economics program, how would the tuition dollars flow to the campuses, colleges, and departments whose faculty created and taught those courses? It would be challenging to create a funding distribution system that appropriately incentivized faculty effort toward remote courses. In other words, why would the UCSB Economics Department assign its faculty to courses for the systemwide remote Economics degree rather than assigning them to the courses that serve its own local F2F student body? If the incentives were too weak, it would be difficult for the remote programs to maintain their quality and viability. If the incentives for remote teaching were too strong, resources might be withdrawn from the F2F programs.

On the other hand, a centralized organization might be able to use economies of scale to reduce the costs of remote programs. For example, creating and maintaining a single online Microeconomics course series would be much less expensive than creating a separate online Microeconomics series at each campus. Similarly, the centralized approach would require only a single design and production unit rather than an independent unit on each campus. Administrative functions such as admissions and advising might also be more efficient if provided centrally rather than being replicated across each campus.

Given the complementary strengths and weaknesses of the campus-based and centralized approaches to remote degree programs, it is not certain which approach would be best in the long run. The campus-based approach would be easier to graft onto the existing administrative structure, but the centralized approach could be more cost-effective.

It is important to stress that, no matter which approach is taken, rigorous Academic Senate oversight will be crucial.

Policy 1: UC Quality On-Campus Degree

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Model Policy Language

1. On this proposal, all UC campuses will create a designation for courses that are designed to be taken remotely (e.g., by appending a letter, like “R” to the course name). Also, any course that requires students in normal circumstances to be physically on campus for fewer than five of the ten weeks of a quarter or seven of the fifteen weeks of a semester will be considered as offering “remote” instruction.
2. This proposal requires that each student complete some percentage of non-remote classes as part of their degree (i.e., that a limit be placed on remote course load). For example, it might be specified that no more than one-third of all the units credited towards completing a student's undergraduate degree AND no more than one-third of all the units which are counted towards satisfying any student's major requirements may be remote. Such restrictions do not apply to second majors for students who are double majoring or to minors.

Notes:

1. The specific details of this policy would require further consultation and negotiation, especially with those with expertise in non-academic aspects of student experience (housing, finances, challenges in degree-completion, etc.). This policy offers the “one-third plus one-third” rule as, at best, a rough rule of thumb for what would qualify as sufficient exposure to the campus experience for a student to be said to have had a reasonable chance to benefit from its particular advantages. If too rigid an insistence on a specific threshold like “one-third” created unnecessary complications for students, an alternative formulation could be adopted.

2. The phrase “any student’s major requirements” in clause 2 above should be understood to mean only those courses described in the catalogue as courses specific to the major, and should not include courses described as “preparatory” to the major. It is unclear, however, if all campuses use the same catalogue language to make this distinction, so the exact wording of this restriction needs to be resolved in wider consultation.

3. There are some courses which might be organized in such a way that certain students take them “remotely” while others, enrolled in the same course, take them with a sufficient on-campus presence that they would qualify as “non-remote.” This policy proposes that campuses could, if they wish, develop a system that allows departments to certify students as having taken the “non-remote” version of certain courses for the purpose of their degree audit. That will be a point left up to individual campuses. Otherwise, these courses would simply count as “remote.”

4. Education Abroad courses would not count as “remote” courses for the purposes of this policy. Indeed, the very benefits that are typically recognized as flowing from the Education Abroad program speak to the educational value for students of in-person interactions and experiences beyond those that are restricted to the classroom.

Rationale and Policy Details:

Some members of this task force believe that degree programs that rely exclusively on remote instruction cannot meet the standards of a UC undergraduate education.

In their influential study, *How College Works* (Cambridge: Harvard University Press, 2017), Daniel Chambliss and Christopher Takacs write:

> *College can provide a wide variety of benefits*. Far more than disciplinary knowledge or technical skills are at stake; in fact, an overemphasis on them may even limit what students can gain. Knowledge and skills count, but so do relationships, attitudes, standards and habits of work and thinking, and membership in broader communities, all less easily acquired later in life. One invaluable potential outcome of college is the motivation to continue learning, supported by a remembered community of fellow students and teachers. (157)

This task force was charged with considering the wisdom of offering "online only" degrees at the University of California, and to that end it spent considerable time learning about and debating the strengths and weaknesses of online pedagogy. But ultimately, what some have come to realize is that the question of "online" versus "face to face" education is to some degree a side-issue. Online education, like face to face education, can be done well or done badly, suits certain subjects or topics well, and not others. Increasingly, it will be seen simply as one among many tools available to instructors, and it seems reasonable to imagine that the majority of courses taught at the University in the not too distant future might be hybrid in their mode of delivery.

Policy 1 is motivated by the concern that students who complete a remote "online only" degree will not have access to all of the ancillary benefits of a "UC education." These are the goods described by Chambliss and Takacs, above, and which, they argue, are actually central to the lasting value of the college experience. As they write, a University "is less a collection of *programs* than a gathering of *people*…. Curriculum is nice, but may not be fundamental for a good college. But good people, brought together in the right ways, we suspect are both necessary and perhaps even sufficient to create a good college" (5).

Attending a university has benefits that go well beyond being trained in a particular intellectual discipline. It includes opportunities for novel and self-forming encounters and experiences. From the diverse student body, to the many different academic disciplines, to student clubs, to drama programs, art exhibitions and political protests the experience of life on a university campus is the experience of being situated within a community of overlapping communities, each offering windows into different ways of being, knowing and understanding. Anyone who has taught at a university knows of the student who came to campus to major in Biology, stumbled upon an open-mic slam poetry event, and ended up an English major; or the student who helps a friend run for office in the Student Association and then discovers a passion for public service that leads them to a career in State politics; or the student in Engineering who attends a campuswide presentation of Undergraduate Research and discovers a fascination with Artificial Intelligence that determines their future pathway through graduate school and beyond.

Replicating a university's diverse array of experiences and opportunities in a curriculum supplied entirely through remote education would not be possible. Nor would most students, save the wealthy and privileged, be able to create similar opportunities for themselves in their local contexts. To limit a student's interaction with and experience of the university to the delivery of a given curriculum in a particular sequence of classes would impoverish what many now think of as a "UC-quality" degree. It is to diminish the broad educational mission of the institution to address our students holistically, rather than the narrower goal of training people in a set of specific skills and certifying their competence in those skills. Thus, Policy 1 guards against limiting a student's interaction with and experience of the university to coursework.

The rewards of the on-campus experience that are outlined above are not "optional extras" but central aspects of what some think of as a "UC-quality" education. According to Vencent Tinto, in his work on students' engagement with and persistence in higher education, "it is the individual's integration into the academic and

social systems of the college that most directly relates to his continuance in that college."[13] In a report on a major longitudinal study in 2014, Daniel Flynn argues that the data show that "persistence is more strongly associated with … social engagement behaviors than with … academic engagement behaviors" (485).[14] But even the "academic behaviors" that Flynn describes here are ones that are difficult to imagine being inculcated as effectively in a remote-education setting as they are on the campus:

> In essence, both academic engagement behaviors (meeting with faculty informally, talking with faculty outside of class, meeting with an advisor, and participation in study groups) and social engagement behaviors (attending arts/drama performances, participating in clubs, and participating in sports) contribute to 4-year postsecondary degree attainment net of student-level and institution-level factors. (491)

In a recent article on the challenges posed by online education in *Dædalus, the Journal of the American Academy of Arts & Sciences*, Sandy Baum and Michael McPherson make the point that online-only students are deprived of crucial opportunities to model learning behaviors:

> Students at the undergraduate level, particularly those who are first generation or have attended weak high schools, may struggle with developing good study skills. This is especially important if there are not strong structures in place to ensure that students are keeping up. Some habits of mind that are essential to success in learning can be taught directly: show up on time, take good notes, stay on top of assignments, work steadily without cramming, and so on. But it is also valuable, and maybe more so, for students to see these habits in practice. These "noncognitive skills" or dispositions are critical to academic success, but they can also be of great value both for career success and in accomplishing personal or community goals. (246)[15]

One of the most important distinctions of a "UC-quality" education is that students are offered the opportunity to participate with faculty in and to conduct their own research. No doubt some sorts of online equivalents for those opportunities could be devised in many instances. However, remote students, who view their engagement with the institution almost solely through the medium of the individual courses they are taking, do not have the same rich density of chance opportunities for inspiration and engagement that are constantly open to their on-campus equivalents.

Policy 1 would ensure that all students have at least some meaningful contact with a physical UC campus and the opportunities it offers. It allows programs all the flexibility they need to innovate and experiment in different modes of course delivery. It also allows students the flexibility, where their programs do offer online instruction, to arrange their schedules so that they need not be physically present on campus for every session, or, indeed, for a majority of them. Programs are free to offer online versions of any and all their courses, so long as they offer sufficient face-to-face instances for students to be able to complete their degrees while satisfying the minimum percentage requirement.

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[13] Tinto, Vincent. "Dropout from Higher Education: A Theoretical Synthesis of Recent Research." *Review of Educational Research*, vol. 45, no. 1, 1975, pp. 89–125. JSTOR, www.jstor.org/stable/1170024. Accessed 16 May 2020.
[14] Flynn, Daniel. "Baccalaureate Attainment of College Students at 4-Year Institutions as a Function of Student Engagement Behaviors: Social and Academic Student Engagement Behaviors Matter," *Research in Higher Education* 55.5 (2014).
[15] Baum, Sandy and Michael McPherson. "The Human Factor: The Promise & Limits of Online Education," *Daedalus* 148:4, (2019): 235-254.

Policy 2: UC-Quality Remote Degree

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Model Policy Language

1. Degree programs would be allowed to offer all courses in a remote format. However, fully remote degree programs would have to carefully justify how they would fulfill all characteristics of a UC-degree (see Appendix C).
2. All students would be admitted directly to one of the undergraduate serving UC campuses, students would earn a regular UC degree, and students would have access to the full set of privileges that are available to traditional F2F students. This includes, among other privileges, the right to transfer to on-campus F2F instruction, the right to explore courses outside of their major program, the right to change their major (when qualified) to any F2F or online major offered by their campus, the right to double major in either F2F or other remote majors offered by their campus, and the right to access any other campus resources (career advising, student health, library, gym, etc.).

Notes:

1. Unlike the UC quality on-campus degree defined in Policy 1, a UC quality remote degree would permit the development of fully remote degree programs so long as the programs adhere to all of the defining characteristics of a UC degree (see Appendix C). However, the task force expects that it may not be appropriate or even feasible for many programs to adopt a fully remote curriculum, particularly for programs with substantial experiential, studio, or lab components. More ground work will be required to determine the full set of courses that should be offered in a remote format, with an understanding that the list of courses may grow with advances in technology and that some degree programs may never convert to fully remote delivery.
2. While tuition for programs developed under Policy 2 would be the same as under existing F2F programs (and under Policy 1), there may be reasons to permit flexibility around the fees assessed by the Regents and by each Campus. For example, students in fully remote degree programs may not avail themselves of some on-campus resources (e.g., the gym), and may also need alternative support. For example, if a student is remote and cannot use on-campus student health services, then an alternative means of supplying health care, with a different fee structure, might be appropriate. See Appendix H, Issues specific to UC-Quality Remote Degree programs, for more discussion.

Rationale and Policy Details

Some members of this task force believe that degree programs that rely exclusively on remote instruction can meet the standards of a UC undergraduate education, provided that specific criteria are met, as described below.

Just as proposals for new online courses required more careful scrutiny than proposals for F2F courses when online courses were new, proposals for fully online degree programs will require more careful scrutiny than proposals for traditional degree programs (at least for the next several years). Thus, Policy 2 proposes that any new online degree programs be subject to approval by a separate oversight mechanism that is discussed in Appendix I.

In general, proposals for online degree programs should be evaluated in terms of how they satisfy our general expectations for a UC-quality education (which is distinct from the expectations at other institutions, such as the CSU system).

Some of these characteristics will require special attention in an online degree program, such as “ample opportunity for closely mentored relationships with faculty and other University-affiliated personnel that allow students to pursue independent research, creative activity, or service to society related to their field of study.” Online degree programs will not be approved unless they provide detailed information about how they will meet **all** of the characteristics of a high-quality UC education. Due to the high up-front and continuing costs associated with effective remote course, as well as the need to ensure that students are receiving a UC-quality experience, proposals must also include a detailed evaluation plan that will assess how well the program has achieved all of these characteristics and will be, at least initially, subject to additional system-wide review (see *Oversight/Ongoing Review Process* section below).

A central pillar of this proposal is that students will be matriculated to specific UC campuses (rather than just to a remote program) and the home campus must guarantee a student's right to change major, double major, switch to F2F instruction if they so choose, and have full access to campus resources. One of the key goods provided by a UC-quality education is the opportunity for intellectual experimentation, growth, and reinvention. The ability to double major or to change major ensures that students can forge the academic paths that best align with their intellectual and personal growth.

<u>Approval process by a special mechanism</u>

Proposals for online undergraduate degree programs should include the following questions or similar:

Please describe how the program is structured to ensure it has **all** of the following characteristics, considered essential for UC degrees. Where relevant, please explain specifically how these characteristics are guaranteed for students taking a significant percentage of courses on-line.

a) Address content reflecting the most current research in their field of study.
b) Delivered under the direction of UC Senate faculty, and include substantial contributions from lecturers, graduate students, and other academic positions filled by individuals who understand and can communicate the unique perspective of the UC research university environment.
c) Include appropriate and substantive student-instructor and student-student interaction.
d) Develop interpersonal skills that will contribute to success through collaboration.
e) Develop sensitivity to the diversity of domestic and international cultures that will enhance students’ capacity to operate within and advance American and global society.
f) Provide ample opportunity for closely mentored relationships with faculty and other University-affiliated personnel that allow students to pursue independent research, creative activity, or service to society related to their field of study.
g) Foster the abilities to interpret and organize information critically, analytically, effectively and transparently, and to maintain intellectual integrity and high ethical standards and intellectual honesty.
h) Can contribute indirectly to student awareness of, and involvement in, the perspective unique to the culture of a public research university, with special insight for how that perspective enriches their disciplinary and general education.

i) Provide students with research opportunities closely mentored by UC faculty.
j) Take advantage of the unique benefits of UC's 10-campus system through cooperation, collaboration, differentiation, administration and specialization among the campuses.
k) Provide a civil and inclusive multicultural environment that conveys and helps to develop the most current knowledge, theories, ideas and perspectives.
l) Provide insights and experiences that are based in both research and practice.
m) Take advantage of the important social, cultural and intellectual contributions enabled by having a diverse population of students from a variety of underrepresented populations.

2. What are the general education requirements for this program? If the program is hosted by a single campus, are they different in any way from that host campus's general education requirements?

3. What is the strategy for providing fair and equitable student learning assessments (tests and exams)?

4. Please describe how the program will evaluate its success, especially with regard to the set of characteristics described in #1. This description should indicate the nature of the metrics, their validity for assessing the specific characteristics, how often they will be obtained, and the procedure that will be used to ensure broad/random sampling. In addition, because online education has in some cases been problematic for students from disadvantaged backgrounds, describe how you will determine whether this program is meeting the needs of low-income students, first-generation students, and students from historically disadvantaged racial/ethnic groups.

5. Provide academic advising for success within the program along with guidance for students considering changing majors either between online programs, online to face to face, or face to face to online.

4. In order to facilitate tracking the proportion of a degree program that may or must be completed in a fully on-line format, campuses should adopt distinct course number designations for fully on-line courses. Such courses should go through an approval process even if a face-to-face or hybrid version of the course has already been approved.

7. What is the accreditation pathway for this program, assuming that it requires special attention from accreditation agencies? Indicate the ways in which this program may impact accreditation of related programs which may or may not be online.

8. How are incoming transfer students accommodated within this program and discuss how outgoing transfer students are served by this program?

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Policy 3 Instruction-Only Remote Degree Programs

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Model Policy Language

1. As in Policy 2, degree programs would be allowed to offer all courses in a remote format. Unlike Policy 2, however, these programs would not be designed to fulfill all of the characteristics of a UC-degree (see Appendix C). They would offer the same high-quality courses as traditional F2F programs and would be taught by the same faculty, but they would not be required to replicate the full set of out-of-the-classroom experiences that are expected under Policies 1 and 2.
2. The remote degree programs could be administered individually by each campus, like the current UC F2F programs, or by a central body that draws on the faculty from the individual campuses (see Appendix K). In either case, the principles of shared governance that apply to our F2F programs would also apply to remote programs.
3. Students would be admitted through a separate process with potentially different expectations, and would receive a distinctive degree with a different name than the traditional UC degree programs (e.g., “Bachelor of Arts in Sociology, Online”).

Notes:

1. Policies 1 and 2 would require that all undergraduate programs have all of the characteristics identified as crucial to UC quality (see Appendix C). Programs developed under Policy 2 would be expected to find ways to deliver characteristics that are generally associated with on-campus out-of-classroom experiences, which could be quite challenging. Policy 3 allows for the possibility of developing fully on-line programs with high educational quality that take full advantage of the affordances of online learning, worthy of a degree from the UC system, even if some of the traditional qualities associated with in-person degrees are absent.Given that students taking instruction-only remote degree programs would not have access to on-campus resources, the fees imposed by the Regents and by a student’s home campus should be modified appropriately. See Appendix H, Issues specific to Instruction-only Remote Degree programs.
2. Although these remote programs would not provide the same outside-the-classroom opportunities as our F2F programs,they might allow a greater number of Californians to obtain a high-quality undergraduate degree. They would open the doors of the UC to high-performing students who prefer online study or whose life circumstances make a residential university education impractical.
3. Substantial work would be necessary to determine whether these programs would actually attract a large number of high-performing but underserved students and whether the programs would be financially viable given the costs associated with creating and delivering UC-quality remote courses.
4. Policy 3 specifies the principles that would be used to ensure that the quality of these programs reflected the stature of the University of California as the nation’s top public research university. It also specifies the steps that would need to be taken to determine whether these programs are financially viable, can be delivered in the context of the UC administrative and academic structure, and would actually increase access and not perpetuate or exacerbate inequities in higher education.
5. Many students in F2F programs start in one major (or as undeclared) and then switch to a different major. This is a valuable characteristic of our F2F programs, and Policy 3 specifies that students in remote degree programs can also switch between remote majors. However, to switch into a F2F program, a student in a remote degree program would need to apply to a UC campus through the existing admissions process for F2F degrees (see here for a flowchart).

Rationale and Policy Details

Policy 3 allows for the creation of fully remote programs that are high in quality but do not try to achieve all of the goals of our F2F programs (i.e., those described in the *Characteristics of Educational Quality At the University of California,* Appendix C). Whereas Policy 2 requires that remote programs meet all of those goals, Policy 3 requires that remote programs meet only a specific subset of those goals (listed in Appendix C).

In particular, Policy 3 requires that the courses in remote programs are comparable in content and rigor to the courses in our F2F programs, but it does not require that they satisfy some of the broader goals of our F2F programs (e.g., developing "interpersonal skills that will contribute to success through collaboration" and giving students "the perspective unique to the culture of a public research university"). Such goals could be encouraged, and many may be achievable as technological innovations are developed, but they would not be required.

However, an immutable requirement of Policy 3 is that the courses in the remote programs must be taught by the same faculty who teach our F2F courses. These faculty must be actively engaged in updating, preparing, and delivering the courses each time they are offered. There is no other way to ensure that the courses in the remote programs have the same content, rigor, and overall quality as the courses in our F2F programs. Moreover, students seek to attend a UC because they want to experience rigorous, up-to-date courses taught by our world-class scholars. If the State of California wishes to create lower-cost programs using lower-cost instructors who are not active researchers, those programs should be created by another university system.

The task force notes that having exactly the same set of faculty who teach in a department's F2F programs teach courses for a fully remote degree program might be challenging in practice. While hard to predict with certainty, senior faculty may be less inclined to reimagine their courses in online form, and department chairs may be reluctant to require that faculty teach in these new degree programs. Indeed, these issues were highlighted during discussions about the UCI Business School proposal for a fully remote transfer degree during the 2018-2019 system-wide review. In that proposal, teaching duties were heavily weighted toward younger faculty, and unless corrected, this bias may reduce a student's chances to take classes with and to have meaningful contact with established leaders in their fields. It would be very much counter to the spirit of this proposal to have, for example, a situation in which research professors primarily taught F2F classes while teaching professors taught the online classes. Thus, successfully implementing an instruction-only remote degree program would require that a department has substantial buy-in from faculty at all levels to ensure that students have exposure to the full scope of expertise of the UC faculty. We propose that one explicit criterion for a successful review of these programs be that the mix of faculty largely mirrors that of comparable F2F degrees offered by the program.

Because the remote programs would not have the same goals as our F2F programs, they would have a separate admissions process and separate degree names (e.g., "Bachelor of Arts in Economics, Online"). Because of the rigor of the courses, standards for admission must be as high (or nearly as high) as the standards for our F2F programs. We recommend initially developing 2-year programs for students who have already satisfied their general education requirements (e.g., at a community college or in a F2F UC program), focusing on majors that are popular, do not require courses that are challenging to deliver remotely (e.g., lab courses), and can readily provide opportunities for online participation in faculty research.

The primary goal of Policy 3 would be to increase the number of Californians who have access to the coursework elements of a UC-quality education. The policy would overcome limitations on the number of students that are due to either the limited physical capacity of our individual campuses or to the fact that many high-achieving Californians cannot relocate to one of our physical campuses for 4-6 years. For these students, an education that included UC-quality coursework but lacked other elements of the on-campus UC experience might be far preferable to their other options.

Because it would create a class of remote degree programs that does not currently exist, Policy 3 mandates several steps prior to implementing any remote programs.

- Because students, parents, and employers currently regard online degree programs as inferior to traditional F2F or blended programs (Protopsaltis & Baum, 2019)[16], Policy 3 requires a careful study to assess demand among a diverse set of high-achieving students. This would include both the number and the diversity of the applicants who would meet our high admissions standards, and should also carefully weigh any reputational risk given that the UC would be the first university system of our stature to start offering large numbers of remote degrees.
- Policy 3 requires a careful study of the practicalities of creating high-quality remote programs within the UC system, including the financial structure and the acceptability of remote programs to faculty and departments.
- Studies would need to identify how many qualified students there are who cannot attend a physical campus AND who would be competitive with students who would be happy to attend a physical UC but didn't make the cut for their preferred UC. This is important because many students get turned down by the selective UCs and then go on to attend another institution rather than go to what they perceive as a "lesser" UC. Thus, if the selective UC campuses start offering instruction-only remote degrees, the very students targeted by these new degrees may find themselves crowded out by better-qualified applicants who are fully able to attend a physical campus but who did not qualify for the campus of their choice.
- Instruction-only remote degree programs could increase the number of Californians served by the UC system, and Policy 3 requires a firm commitment from the legislature for funding these programs. However, the UC should first determine if, in the interest of expanding access, it would be more cost-efficient to directly target those highly qualified students who feel incapable of attending UC with specific kinds of support that enable them to do so (rather than creating new remote degree programs).

As described in Appendix F, the remote programs created under Policy 3 would not result in lower tuition or require lower levels of per-student state support. Indeed, Policy 3 would likely require an increased state investment in UC to accommodate the increased number of students and the digital infrastructure of remote programs. However, student fees might be lower, and students may be able to save substantial amounts of money by living at home. In addition, the remote degree programs could be designed to accommodate part-time students, allowing them to work full time (or nearly full time) while in college and spreading the cost of education over a larger number of years. In this way, the programs created under Policy 3 could potentially increase access to a college degree for underserved students.

Careful processes would be necessary for the approval and regular review of new remote degree programs. Instruction-only remote degree programs therefore require the same approval and review processes as UC-quality remote degree programs (Policy 2), except that the approval and review processes would be limited to the goals set out for Policy 3 (as listed in Appendix C). In addition, it would be necessary to specify how a program would ensure that the instructors are comparable for remote and F2F courses (Appendix I).

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[16] Protopsaltis and Baum. Does online education live up to its promise? A look at the evidence and implications for federal policy (2019)

Online Undergraduate Degree Task Force 2019-2020 Roster

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Visual summary of policy proposals (pages 48-50)

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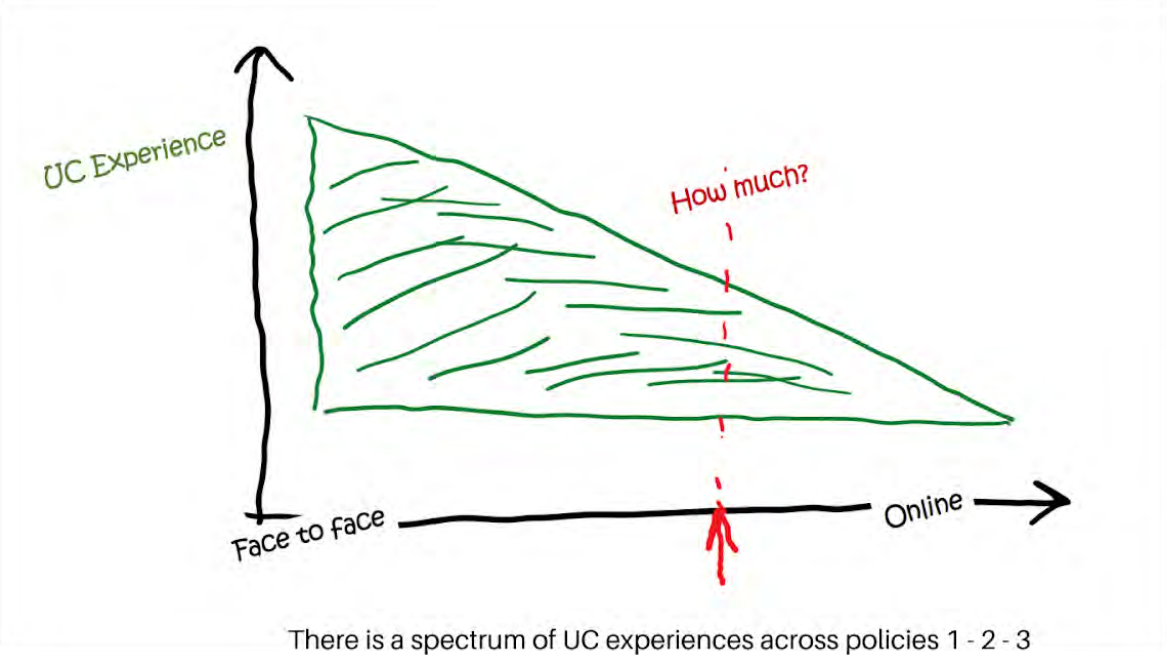
The continuum of the educational experience



There is a spectrum of UC experiences across policies 1 - 2 - 3

The more material moves online/remote, the less exposure there will be to the UC residential experience

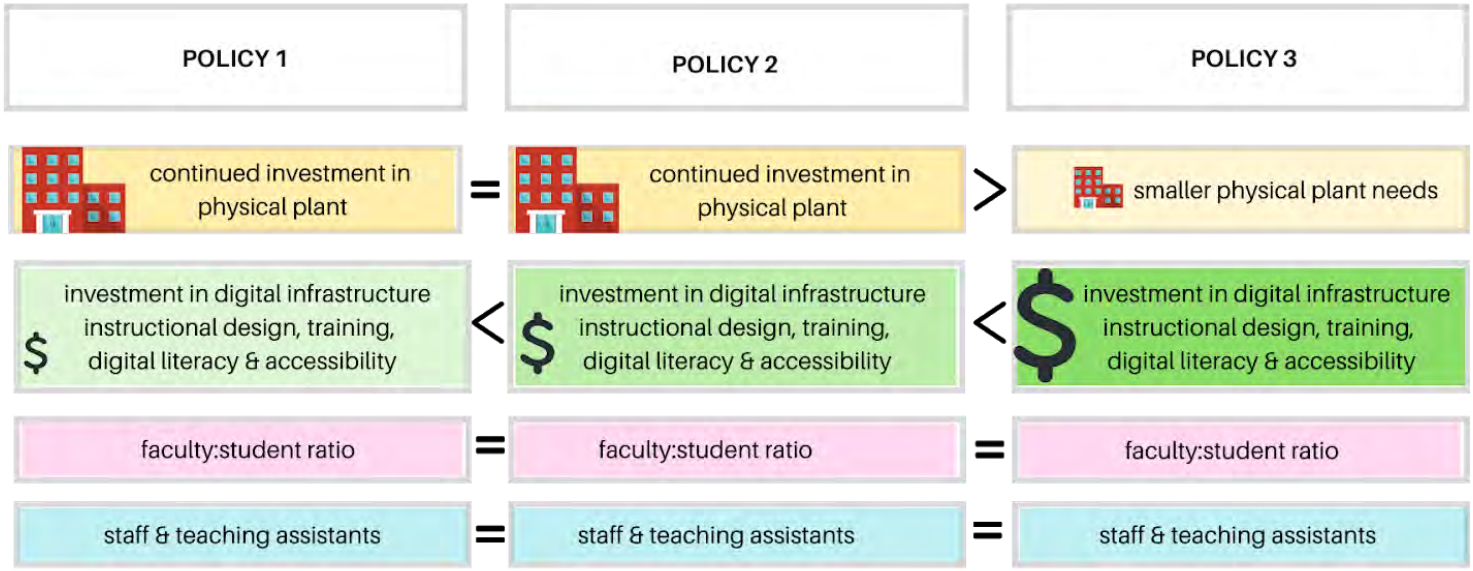
GUIDING PRINCIPLES OF A UC EDUCATION

as applied to different program modalities

POLICY 1: UC quality on campus current model residential degrees with some online courses		POLICY 2: UC quality remote online degree from individual campus		POLICY 3 instruction only remote degree	
majority of classes are F2F	time to degree: 4-5 years	all online classes possibly some on campus	time to degree: 4-5 years	all classes online	flexible time to degree
residential student life residential requirement	student services on campus	no residential requirement, but access to on campus services	residential student services extended to online students	no residential life no physical campus	all student services delivered online
UG and graduate programs	faculty are hired by campus	online MAs already in-place expansion to online BAs	faculty are hired by campus	2-yr online major eventually 4-yr program	ladder rank UC faculty hired by entity
This model is the current one - increasing accessibility requires more intense use of existing resources or expansion of physical plant and faculty numbers		This model expands on the current one: individual campuses can expand accessibility through online programs, will require additional faculty and associated resources.		This model creates a new & separate UC online programs: possibility of some scale economies with cross-campus collaboration, will require a investment in new talent and digital infrastructure	

COST OF UC GROWTH

as applied to different program modalities



Flowchart of Instruction-Only Remote Degree Program

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