

ACADEMIC SENATE TASK FORCE ON MICRO-CREDENTIALS

Report of Findings and Recommendations

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EXECUTIVE SUMMARY

The broader context for the creation of this Task Force is the growing practice of offering, in online or in other formats, micro-credentials (variously called “certificates,” “badges,” MicroMasters©, or “nanodegrees”) to non-matriculated students. These instructional programs typically offer courses that are similar in content to those offered by Masters programs, but require the completion of fewer courses than under a traditional degree-granting program. UC Berkeley’s participation in such efforts to date has largely been associated with edX and University Extension (UNEX), and has not involved consultation with the Academic Senate. This report summarizes the current situation, and makes recommendations concerning governance and review processes; misleading terminology and representations; and financial considerations and exclusivity of UC Berkeley’s relation to edX. Our three main recommendations are as follows:

- 1) We recommend that a Special Committee of DIVCO on Online Education and Professional Certificates be created.
- 2) We recommend that UC Berkeley not adopt the term MicroBachelors©.
- 3) We recommend that UC Berkeley continue to monitor the financial health and strategy of edX, as well as its own goals and costs in maintaining the relationship, and review the relationship on an annual basis. This review should be carried out by the Berkeley representative on the edX board in collaboration with Digital Learning Services (DLS), UNEX, and the proposed Senate Special Committee on Online Education and Professional Certifications. This collaborative review process should be extended to proposals from other online providers, bearing in mind the possibility that changes in technologies and business models might create opportunities for beneficial collaborations with these providers.

INTRODUCTION

The Task Force on micro-credentials was appointed in November 2018 to make recommendations concerning the growing business of associating UC Berkeley with a variety of courses of instruction that grant credentials, professional certificates, and so-called micro-degrees to non-matriculated students. These courses of instruction do not currently fall under the purview of the Academic Senate. The Task Force was charged with making recommendations concerning the role that the Academic Senate should play in the review and approval of credentials, certificates, and “micro degrees” advertised under the Berkeley “brand.”

The larger context for the Task Force is the increasing interest on the part of Berkeley's administration and faculty in exploring how to reach broader populations of non-matriculated "learners," ideally through high-quality offerings that could complement Berkeley's existing programs, expand our reach into new formats, and extend our visibility and impact. The immediate impetus to the formation of this Task Force was a proposal for a Berkeley "MicroBachelors©" in Data Science, with courses offered through San Jose City College, which was presented to the Senate in July 2018. The term "MicroBachelors©" is copyrighted by edX and indicates a set of courses, both synchronous and asynchronous, which, when taken together, qualify for a stand-alone workforce credential, but also for potential transfer credit should a student be accepted to a four-year institution accepting this type of credit. In the proposal in question, Berkeley's online Foundations of Data Science (known as Data 8X; offered as COMPSI C8, STAT C8, and INFO C8) course would provide the lecture content for a course delivered by SJCC faculty, who would provide laboratory and other in-person instruction; other courses would be SJCC courses approved for articulation with UC Berkeley courses. The concept is driven by a view that Bachelors degrees of the future will be made up of modular or "stackable" micro-credentials which might be taken online at different institutions and then packaged together to form the equivalent of a traditional four-year degree.

Concerns immediately arose regarding the misleading use of the term "Bachelors" to name what is, in effect, a certificate rather than a degree, and of the suggestion that the Bachelors in question was earned at Berkeley. An initial foray into Berkeley's participation in already extant edX courses reinforced these concerns. EdX currently offers a "MicroMasters© in Marketing Analytics" through UC Berkeley Extension (UNEX); the offering institution is listed as "The University of California, Berkeley."

<https://www.edx.org/micromasters/berkeleyx-marketing-analytics>

As with "MicroBachelors©," the term "MicroMasters©" is copyrighted by edX. This particular MicroMasters© includes four online courses, each five to seven hours per week for four weeks, for a fee of \$896.40. Individuals who complete the series receive a certificate that lists the instructors of the courses, and their affiliations as "The University of California, Berkeley." If those individuals seek university credits for the "MicroMasters," they do so not through UC Berkeley, but rather through such institutions as Curtin University, an online institution in Western Australia, and the Rochester Institute of Technology, both of which apply credits earned through the MicroMasters© to Masters degrees at their institutions. In March 2019, the "University of California, Berkeley" was added as one of the institutions applying credit; we believe that this was a blatant misrepresentation. The program's certificate grants an individual advanced standing in UC Berkeley Extension's Marketing Certificate program; it does not offer an articulation or transferable credits to any UC Berkeley Master's degree. *UC Berkeley cannot give transfer credit for courses earned from unaccredited institutions of learning.* MIT, the first institution offering a MicroMasters©, does not have this policy restriction and can therefore accept this credit towards a true MIT degree. This policy dissonance leads to a misrepresentation of what is expected from a MicroMasters© advertised as being offered by the "University of California, Berkeley."

These edX innovations build upon a growing practice of offering, in online or in other formats, what are variously called “certificates,” “badges,” or, “nanodegrees” (the latter is a term coined by Udacity) to non-matriculated students. These instructional programs typically offer courses that are similar in content to those offered by Masters programs, but require the completion of fewer courses than under a traditional degree-granting program.

Berkeley’s Extension (UNEX) offers professional certificates, which it defines as follows:

1. Professional Certificates: Extension’s professional certificates comprise a minimum of 140 hours of coursework, generally 6–8 required and elective courses, in more than 20 subject areas. The coursework is university-approved for credit, recorded in a permanent transcript and thus eligible for transfer credit. Most programs can be completed in less than two years, but generally allow students up to five years to finish. These programs are meant to be reviewed and approved by the relevant UC Berkeley departments or schools.

In addition to the formal, credit-bearing professional certificate, Extension will issue unofficial “certificates” that verify a student completed the requirements for a non-credit course or program. Some curricula only require that the student attend the sessions while others may have different requirements. Examples include:

2. Verifying program completion: students and employers need verification that the learner/employee completed a corporate education program through Extension. For example, there might be an intensive workshop in “change management” that offers professional development units (PDUs). There is no academic credit or grade associated with these unofficial certificates.
3. Verifying participation: some professions require practitioners to meet continuing education requirements to remain licensed or accredited in their fields. Extension offers courses approved by credentialing bodies to meet these requirements. Course offerings can vary each term, and new courses are being developed continuously. For example, K-12 teachers are required to earn continuing education units (CEUs) each year. There is no academic credit or grade associated with these unofficial certificates.

None of these categories of certificates from UC Berkeley Extension are subject to Senate review (although, as noted, the professional certificates are reviewed by the relevant UC Berkeley departments or schools).

UNEX certificates should not be confused with “Graduate Academic Certificates,” offered by Berkeley Departments or Professional Schools (e.g., the recently approved Graduate Certificate in Food Systems, offered jointly by the School of Public Health, the Berkeley Food Institute, and the Goldman School of Public Policy).¹ These certificates are available only to matriculated

¹ <https://food.berkeley.edu/programs/community-engagement-edu/graduate-certificate-food-systems/>

Berkeley graduate students, and their curricula are subject to the approval process outlined in the Berkeley Compendium. Nor should they be confused with Self-Supporting Graduate Professional Degree Programs (SSGPDPs), which are also subject to extensive Senate review.

EdX also offers its own professional certificates, with certification determined by enrollment in one or more edX courses, completion of course requirements, and payment of a fee.²

Given the existing faculty oversight over the aforementioned credentials, the Task Force chose to focus on credentials offered or proposed through UC Berkeley's relationship with edX (i.e., "BerkeleyX"), where there is currently no Senate oversight. This included the proposed MicroBachelors© certificate and the existing MicroMasters© certificate offered on edX by way of UNEX.

History of UC Berkeley and edX

An exclusive agreement between UC Berkeley and edX was established by Chancellor Robert Birgeneau in consultation with Armando Fox in July 2012. At the time, in the very early days of massive online education, the choice was between for-profit online platforms (Coursera, Udacity) and non-profit online platforms (edX), and the University opted for non-profit. This was an exclusive, five-year agreement made with no consultation of the Academic Senate. Harvard and MIT were the original financial contributors to edX, giving \$30M each; Berkeley did not make a financial contribution. UC Berkeley serves on the University Advisory Board and a UC Berkeley official sits on the edX board. The agreement was renewed by EVCP Paul Alivisatos in July 2018.

BerkeleyX, as it is called, currently offers one MicroMasters ("Marketing Analytics"), five Professional Certificates ("The Science of Happiness," "Blockchain Fundamentals," "Business Writing," "Foundations of Data Science," and "Agile Development Using Ruby on Rails") and over 60 MOOCs (massive open online courses). EdX as a whole currently offers 52 MicroMasters© from institutions that include MITx, UCSanDiegoX, ColumbiaX, BUx, PennX, as well as institutions such as Curtin University, Doane University, Rochester Institute of Technology, Delft University of Technology, Chalmers University of Technology, and Wageningen University & Research. We note that, although HarvardX offers a wide range of courses on the edX platform, it has apparently not opted to participate in the MicroMasters© program.

Of the "offering institutions," only UC Berkeley and UC San Diego do not grant course credit to students who later enroll in their Masters degree programs. Instead, other institutions accept credit from BerkeleyX (Curtin University, Rochester Institute of Technology) and UCSanDiegoX (Rochester Institute of Technology) for courses in their Masters programs. In these two cases, credit pathways were proposed by the institutions wanting to provide pathways, and agreed upon with edX and UNEX. UC Berkeley appears to have no veto power in this process.

² <https://www.edx.org/verified-certificate>

FINDINGS AND RECOMMENDATIONS

In what follows, we discuss the three main concerns raised in the Task Force's

deliberations: (i) governance and the approval process for certificates and micro-credentials for non-matriculated students; (ii) misleading terminology, truth in advertising, and erosion of the Berkeley brand; (iii) implications of the changing nature of edX's financial model and the exclusivity of UC Berkeley's relation to edX.

Governance and Approval Processes

Currently, individual faculty members or departments may approach edX with proposals to develop online courses to be offered through its BerkeleyX platform. Although some of these may be spinoffs of courses that have been approved by COCI, there is no requirement that this be the case. In our conversations with guests, we heard that the course materials often are not identical or even necessarily comparable to UC Berkeley content. There is also no formal or systematic process for the regular review of BerkeleyX course offerings.

Different universities have taken different approaches to using the edX platform. The Task Force contacted MIT and learned that it has established a course approval process for MITx in which faculty wishing to offer courses submit proposals to a faculty council; approval of the Graduate Council is required, as is the vote of the entire faculty. This appears to be because students receive MIT credit if they enroll in MIT after they take the edX course; MIT edX courses are considered to be MIT quality. We also heard that MIT views edX as a means to improve revenue, reach, and reputation; it is considered a recruitment tool for in-person, on-campus study. The CEO of edX told us that MIT faculty are divided in their views of whether to launch a MicroBachelors®.

By contrast, BerkeleyX courses are typically used to showcase content that stands in some relationship to on-campus teaching or research, but is not intended to contribute directly toward a Berkeley degree. Because edX is not an accredited institution, UC Berkeley students cannot receive transfer credit for its courses. Production of BerkeleyX courses is done by an on-campus office called Digital Learning Services (DLS), and quality review is done by the proposer of the course. There is no Senate approval process; it is also unclear who may propose a BerkeleyX course. Although the courses might have intellectual and reputational benefits, they have no immediate practical value as a recruitment tool for students who wish to study at Berkeley. For non-matriculated students, it is possible that the courses may serve as a recruitment tool for institutions outside of the UC who have chosen to articulate to these courses. Moreover, we heard some concerns that, because BerkeleyX courses are not subject to the same quality oversight as UC Berkeley courses, they may conceivably tarnish rather than enhance the University's reputation. At the very least, the lack of clarity about the character of BerkeleyX offerings, together with the association with the Berkeley name, has considerable potential to create confusion.

Recommendation:

1) Create a Special Committee of DIVCO on Online Education and Professional Certificates

In light of the ever-changing landscape in online education and digital technologies and the proliferation of certificates, online master's degrees, and executive education programs across formal and informal contexts, we recommend the creation of a special Senate committee. For the purposes of this committee, we understand the expression "professional certificates" to serve as an umbrella category that includes all manner of non-degree granting courses of instruction that grant instead various kinds of micro-credentials, including current "nanodegrees," "badges," "certificates," MicroBachelors©, and MicroMasters©, as well as any future labels or neologisms that name similar bundlings of courses that receive similar institutional or organizational recognition. Since there may be opportunities as well as hazards for UC Berkeley in this arena, we believe that the Senate will strongly benefit from a well-informed basis for shaping its recommendations and actions. We also believe that a Senate committee will provide a valuable partner for Berkeley's administration as the campus charts its strategy. As a "special committee of DIVCO," it would be authorized for a specified period of time, and subject to reauthorization by DIVCO upon the expiration of its initial term.

The committee will be charged with monitoring BerkeleyX, University Extension, and any other programs issuing professional certificates to non-matriculated students, considering whether there should be an approval process for courses leading to any such certificates or the certificates themselves (including the MicroMasters© in Marketing Analytics), and proposing and then instituting this approval process. Any approval process should be similar to current Committee on Courses of Instruction (COCI) and Senate processes. The committee will also be charged with collecting and collating financial data on campus revenues and expenses for the campus's online degrees for comparison to certificate program efforts; these data will be shared with CAPRA. The committee will conduct a three-year review of costs, revenues, and labor market outcomes of these programs.

The committee will also serve as a clearing house for Berkeley-related online programs issuing certificates to non-matriculated students; to our knowledge, no such centralized tracking mechanism currently exists. The Special Committee on Online Education and Professional Certificates (OEPC) will interview constituents from these areas during the course of the academic year and report to DIVCO each year with a summary of developments. The committee will also serve in an advisory role to DIVCO on matters pertaining to online education more generally. Membership of the committee will consist of at least five faculty members (including one representative from COCI and one from GC), a graduate student, and an undergraduate student. A request to DLS and Extension will be made to help staff the committee.

Misleading Terminology and Representations

The system of degrees that includes the terms "Bachelors" and "Masters" has been in existence since the thirteenth century, and is universally understood to name degrees granted by

universities. By contrast, “MicroBachelors©” and “MicroMasters©” are not university degrees, but rather sets of courses that may or may not be applied toward a degree. Given the history of the terms, we believe this re-signification functions as an obfuscation. We are also concerned by the way in which edX certificates (whether for professional certificates or for MicroMasters©) present the offering institutions. The name “Berkeley” is featured prominently, and certificates include the names of the faculty members, who are explicitly associated with “The University of California, Berkeley.” We are concerned that students and employers alike may presume that a micro-credential presented in this way has undergone the same rigorous approval process as credit-bearing courses offered to matriculated students, and hence bears the same quality and significance of a Berkeley degree. We are also concerned that employers may presume that individuals who receive these “micro-degrees” have undergone the same highly selective admissions process as matriculated students. We find this confusion particularly concerning at the undergraduate level, where professional training and workforce credentials have not traditionally been a part of the curriculum, and may be more easily misunderstood.

Recommendation:

- 2) We recommend that UC Berkeley not adopt the term MicroBachelors .©

We take the proposal for a MicroBachelors© with SJCC as a model of the problems that such an arrangement would present. The online version of Data 8 was created in large part to make it possible for students at community colleges to take a Berkeley-quality course combining Berkeley course content with local instruction, a possibility that is especially valuable for students who are planning to apply for transfer to UC Berkeley. We applaud the proposal to create a suite of courses in Data Science at SJCC, which would then articulate with Berkeley courses, and allow transfer students to apply them toward the Berkeley major in Data Science. This is an arrangement that is already possible under current transfer articulation pathways, and clearly would help students who transfer in their third year to transition more smoothly to UC Berkeley and to graduate in a more timely fashion. However, we find the label MicroBachelors© to be misleading at best, and mendacious at worst. As for the association with the Berkeley brand, we note that, of the five courses that would comprise the MicroBachelors©, only one, Data 8, has in fact been developed by UC Berkeley; the other four are SJCC courses that are approved for articulation with UC Berkeley courses. In our conversations with guests, we heard the view that Berkeley does not need to partner with edX in order to provide this opportunity to community colleges.

We also find the concept of future online modular “Bachelors degrees” to be at odds with the campus’s vision of the undergraduate experience, as conveyed in its most recent strategic plan. Undergraduate education involves forms of learning that cannot be fully conveyed online: collaborative work, hands-on labs and research, and discussions with friends outside the classroom. And the undergraduate experience involves more than learning: life experiences on campus, participation in extracurricular activities, and community engagement are no less important.

Recommendation:

3) EdX certificates for courses currently offered should clearly convey the identity of the institution, programs, or individuals who offer the courses in question. In addition, they should clearly identify the institution that will, upon the payment of a fee, offer credit. They may not suggest in any way that credentials not subject to Senate oversight have been issued by the University of California, Berkeley. The font size for the word “Berkeley” must be less than one-half the size of the credential-issuing institution. The signatures on MicroMasters® or certificates must be those of the edX CEO or the UNEX dean, rather than individual UC Berkeley faculty members. These same principles of transparency and accuracy should apply to edX’s advertisements of online courses as well.

Financial Considerations and Exclusivity of UC Berkeley’s Relation to edX

At the beginning of its work, the Task Force explicitly set aside as beyond its charge an investigation into edX’s financial model. However, as our conversations with guests unfolded and ranged widely over the current landscape of online learning, we inevitably found ourselves drawn into the beginnings of such an investigation (which should, in fact, fall under the purview of the special committee we have recommended). We learned that the share of revenue between UC Berkeley and edX is 60/40; we also learned that the initial \$60 million (provided by Harvard and MIT) in funding for edX is running out (\$8 million at the end of 2016, with an annual operating deficit of \$3 million), and edX is clearly scrambling to find new sources of revenue. In fact, it has recently modified its structure in order to put some content behind paywalls. We caution that Berkeley faculty are going to be much less inclined to invest the time and effort in such courses if edX and others are monetizing these courses without any consultation with, or compensation for, faculty. We also observe that new players are entering the online education market, now that the original revenue-supported, open access MOOC model has fallen out of favor. More segmented strategies are potentially emerging as new business models. While we remain somewhat skeptical about edX’s financial strategy in this more stringent era, we are aware that edX has suggested it can develop new offerings that can suit UC Berkeley’s needs.

These changes have led us to question whether UC Berkeley should continue its exclusive relation to edX, on the assumption that it can be renegotiated at any time. One of the major arguments for signing an exclusive contract with edX initially was that edX, unlike Coursera, was a mission-oriented non-profit committed to the diffusion of Berkeley/Harvard/MIT courses and the promotion of the Berkeley/Harvard/MIT brands, as opposed to the pursuit of profits. As a result of the change in financial model, the differences between edX and Coursera are narrowing. The University can respond to this change in one of two ways, either of which will require a financial outlay to ensure the quality of online offerings. Some of the guests we interviewed expressed the view that the exclusive agreement with edX should be terminated, in order to allow instructors to adopt the platform that they find most appropriate to their pedagogical objectives. We came to understand that moving in this direction would require expansion of the administrative capacity of Digital Learning Services, so that it is able to handle multiple platforms. The Task Force also considered the possibility that the University might continue the exclusive agreement with edX, but provide subsidies to enable edX to focus on the diffusion of Berkeley courses and promotion of the Berkeley brand, instead of maximization of

income. This would make sense only if Harvard and MIT, which originally bankrolled edX, are willing to accept this arrangement.

Recommendations:

- 4) No online course may become a part of an online microcredential program without the express written consent of the originating instructor.
- 5) No online course may be sold or licensed for a fee without the express written consent of the originating instructor.
- 6) UC Berkeley should continue to monitor the financial health and strategy of edX, as well as its own goals and costs in maintaining the relationship, and review the relationship on an annual basis. This review should be carried out by the Berkeley representative on the edX board in collaboration with DLS, UNEX, and the proposed Senate Special Committee on Online Education and Professional Certifications. This collaborative review process should be extended to proposals from other online providers, bearing in mind the possibility that changes in technologies and business models might create opportunities for beneficial collaborations with these providers.

APPENDICES:

APPENDIX A: CHARGE LETTER

APPENDIX B: OVERVIEW OF TASK FORCE PROCESS AND GUESTS

APPENDIX C: PROPOSAL FOR A MICROBACHELORS©

APPENDIX A: TASK FORCE CHARGE LETTER

The Task Force will be charged with considering the rapidly growing practice of associating UC Berkeley with a variety of courses of instruction that grant credentials, certificates, and so-called “micro degrees,” and that do not currently fall under the Senate’s purview. The immediate impetus to the formation of this Task Force is a proposal for a Berkeley “MicroBachelors” to be offered through San Jose City College, as well as an already extant “MicroMasters” degree offered online by BerkeleyX. The Task Force will be charged with making recommendations concerning the role that the Academic Senate should play in the review and approval of credentials, certificates, and “micro degrees” advertised under the Berkeley “brand.” The Task Force should consider both current and proposed credentials, and determine whether credentials are appropriately labelled, and whether they are appropriately attributed to the University of California, Berkeley.

The Task Force should consider the Senate's role in establishing and maintaining program quality, including present mechanisms for review and approval of existing degree programs as well as certificates offered by UNEX. It should develop recommendations consistent with those practices for credentials, certificates, and “micro degrees,” if appropriate. Consideration of processes, outcomes, and best practices for similar programs at peer institutions may be desirable. A first report will be desired by DIVCO by its third meeting of the spring 2019 semester.

The Task Force should include one representative from Graduate Council, one representative from Undergraduate Council, one representative from the Budget and Interdepartmental Relations Committee, one representative from the Committee on Courses of Instruction, one elected member of DIVCO, as well as the Chair and Vice Chair of the Division.

APPENDIX B: OVERVIEW OF TASK FORCE PROCESS AND GUESTS

Meetings

The Task Force met nine times between November 7, 2018, and April 1, 2019. Most of these meetings were discussions with administrators and staff who have experience with edX or other forms of certificate granting programs and digital platforms. Task Force members gained valuable insights from each guest, as well as a wider understanding of the current landscape of workforce micro-credentials. The Task Force was assisted by Academic Senate Associate Director Sumei Quiggle.

Guests

- Armando Fox, Faculty Advisor for Digital Learning Strategy, Office of the Vice Chancellor for Undergraduate Education, and Professor of Electrical Engineering and Computer Science
- Jenn Stringer, Chief Academic Technology Officer
- Anant Agarwal, CEO of edX and Professor of Electrical Engineering and Computer Science, MIT
- Cathy Koshland, Vice Chancellor of Undergraduate Education
- Suzanne Harrison, Director of Digital Learning Services
- Diana Wu, Dean of UC Berkeley Extension
- Paul Alivisatos, Executive Vice Chancellor and Provost

APPENDIX C: PROPOSAL FOR A MICROBACHELORS

Executive Summary for Academic Senate

Prepared by Armando Fox, Faculty Advisor for Digital Learning Strategy, and Vice Chancellor
Cathy Koshland

UC Berkeley's Data Science 8 (Data 8) is the fastest growing course on campus and one of the most popular, reaching an enrollment of nearly 2,000 barely two years after its debut. Data is an introductory yet rigorous treatment of both the theoretical and practical foundations of Data Science.

UC Berkeley is committed to working with our community college partners to support and enhance transfer articulation and workforce development. To this end, UC Berkeley has collaborated with San Jose City College (SJCC) to pilot a pedagogical approach that leverages Berkeley- developed educational digital content with hands-on classroom engagement facilitated by SJCC instructors. In this pilot partnership with SJCC, SJCC instructors will supervise and assist SJCC students with lab assignments and other assessments.

This pilot builds on the success of Data 8 with an approach that combines the strengths of both segments: high-quality pedagogical materials from UC Berkeley, and hands-on mentoring and facilitation by dedicated SJCC instructors experienced in meeting the needs of their students. Students who successfully complete this material at SJCC will not only receive credit† for an SJCC course that articulates with Data8 at Berkeley, but also a stand-alone “micro-credential” attesting to completing Berkeley-level Data Science work, endorsed by major employers in California and elsewhere. This novel approach amplifies existing CCC-UC articulation mechanisms with instructor-facilitated pedagogy that exploits state-of-the-art digital learning resource. With the help of edX as the content delivery platform that makes the course accessible remotely at large scale, Berkeley is showing how UCs can work with CCCs to both train California's future workforce and prepare the most ambitious SJCC students for transfer to UC Berkeley, or another UC, with preparation that positions them to complete a 4-year Bachelor's degree in Data Science if they come to Berkeley.

Because of existing articulation agreements, Berkeley has the opportunity to pilot such partnerships and is exploring further other credentialing ideas as described in the attached document entitled “Data8 and the UC- Berkeley- SJCC “MicroBachelors” pilot.

[Data 8 and the UC Berkeley/SJCC “MicroBachelors” pilot](#)

Summarized by Armando Fox, for internal consumption at Berkeley

***Give a man a fish and he eats for a day. Teach a man to fish and he eats for a lifetime.
Teach a man to teach a man to fish and the whole world gets to eat.***

[Goal and Non-Goal of this specific summary](#)

Goal: Maximize mission-aligned dissemination & adoption of Data 8’s curriculum and pedagogy, in highly visible ways that clearly message Berkeley’s stature both intellectually and in the service of public higher education in California and elsewhere; understanding the specific role the SJCC collaboration could play in furthering that goal.

Non-goal: discussion of opportunities to aggressively monetize Berkeley Data Science programs.

SJCC’s Goal: offer a flexible alternative “stackable” credential

SJCC is piloting a “MicroBachelors” (μB) that would articulate the following courses :

1. CIS-55 (Data Structures) → CS 61B (accepted students must also take our “gap filler” CS 47B)
2. Math 71 (Calc. I)→Math 1A
3. Math 72 (Calc. II)→Math 1B
4. Math 78 (Diff. Eq.) & Math 79 (Lin. Alg.) → Math 54

5. SJCC CIS 107→ UC Berkeley Data 8

#1 through #4 are *already listed* in the ASSIST database as approved articulations. #5, not yet in ASSIST,

is key: SJCC’s course will be a **SPOC** using **Data 8x** (3-MOOC sequence) on edX, with SJCC instructors facilitating the course and supervising lab work on SJCC campus. **Note:** the articulation mechanics are being handled by **Aurelia Long** at UCB and **Karen Pullen** at SJCC.

A student who completes all the above courses will have completed all of the lower division requirements for the Data Science BA major except for taking either CS88 or ENGIN7 on campus (I don't yet know if

there are existing ASSIST articulations for either of those). This goes a long way towards ensuring they can finish the Data Science BA in 4 years. Note, though, that to transfer into UC Berkeley (or any UC), there is a set of University lower-division requirements that must also be fulfilled and have nothing to do with this program.

Is this a μBachelors? Should Berkeley’s brand be attached to it? Yes.

edX is attempting to create an analogous stackable credential at the undergraduate/entry level called aMicroBachelors (μB), which would have both standalone workforce-development value and offer transfer credit into selected 4-year bachelors’ degree programs (in this particular case, the CS undergraduate program at UCB). **We have a unique opportunity to pilot such a credential in California** because of the existing articulation/transfer mechanism between CCCs and UCs. **Berkeley should support this effort and proactively associate our brand with it**, for the following reasons:

Pedagogically sound and mission-aligned. The proposed pilot combines online and in-person in a way that plays to the strengths of community colleges, is well supported by the research literature, and leverages existing CCC→UC transfer machinery. If it’s successful, other CCCs

and UCs may follow suit, and we may be able to attract funding to scale out the μ B vision (see below).

Opportunity to enlist edX resources in scaling instructor adoption. Data8-on-edX is a “course in a box” that is ready for adoption and later customization, but instructors need pedagogical onboarding. Expanding the footprint of this pilot will require scaling up that orientation. We can leverage the Pedagogy Adoption in Data Science summer workshops by capturing the content (videos, activities, etc) as the basis of a scalable, widely-disseminable instructor-orientation package. With appropriate effort and resourcing, such a package could facilitate scaling out to more instructors without running every instructor through a Berkeley on-campus workshop. *I propose that Berkeley proactively engage with edX in promoting this as part of a MicroBachelors archetype and work towards an edX commitment to participate in such resourcing and promoting it via their network to interested instructors.* (I have done something like this, but less deliberate and systematic, for CS169, which is now being taught at several other schools with very little direct involvement necessary from me to onboard those instructors.)

Possible Messaging Points

Note: on Berkeley's end, Mariana Corzo is the point person for coordinating the messaging. **For Berkeley,** message to the public and to Sacramento about mission-aligned activities that broaden access to high-quality public education in California:

1. UCB is working with Community Colleges and a nonprofit partner (edX) to educate California's future workforce.
2. As part of that partnership, UCB not only secured funding to make our internal course accessible to the world [acknowledge Google & other donors], but also specifically created instructor training programs (e.g., the planned summer workshop for instructors on Adoption of Pedagogy in Data Science) to facilitate uptake of the course [acknowledge Microsoft & NSF for supporting this pilot]. These will be used as the basis of future online instructor-onboarding materials.
3. Investing in non-traditional fields of study that support rising industries, like data science, was a strategic structural decision that required significant investment by UC Berkeley. The creation of Berkeley's new Data Science Division was driven by the university's commitment to deliver access to world-class public higher education that prepares students to become future leaders in this area.

For SJCC, message to the public and to their prospective and current students that:

1. This MicroBachelors is an innovative, affordable, accessible credential that has both workforce credibility (because it's offered intersegmentally by a highly respected public higher ed system,

not by a for-profit), and provides a credit pathway into a UC Berkeley 4 year degree.

2. This is a model for how CCC/UC/edX partnership should be emulated (both inside & outside CA) to combine the relative strengths of each partner: high-touch “embedded in the community” of CCCs; quality course content created by leading researchers/teachers at UC; credit-grade platform by edX that enables each instructor to get appropriate analytics/insights for their own student cohort while the course overall runs at MOOC scale.

For edX, message that they are differentiating themselves from for-profits and others, and make Berkeley’s wholehearted endorsement and participation conditional on these tasks, by:

1. Providing specific features in the platform to facilitate “credit-grade SPOCs”: private/SSO for learners from μ B institutions; fixing CCX (institution-specific cohorts with instructor roles that can see student learning data; cohort-specific features/discussion boards/etc.)

2. Providing support to scale up instructor training for such courses, by (eg) creating/underwriting

MOOC content to onboard Data 8 instructors. There may be an opportunity to engage Oracle Academy (via Allison Derbenwick Miller) to support this, as they have a major interest in supporting instructor training to expand access to high quality learning.

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