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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*

April 3, 2023

**KATHERINE S. NEWMAN  
PROVOST AND EXECUTIVE VICE PRESIDENT  
UNIVERSITY OF CALIFORNIA**

**Re: Review of Proposal for UC Berkeley College of Computing, Data Science and Society (CDSS)**

Dear Provost Newman:

In accordance with the *Universitywide Review Processes For Academic Programs, Units, and Research Units* (the “Compendium”), the Academic Council solicited input from the Coordinating Committee on Graduate Affairs (CCGA), the University Committee on Planning and Budget (UCPB), and the University Committee on Educational Policy (UCEP), about UC Berkeley’s full proposal to establish a College of Computing, Data Science and Society (CDSS).

In 2021, CCGA, UCEP, and UCPB reviewed the CDSS pre-proposal and identified<sup>1</sup> several significant concerns that the forthcoming full proposal should address. These concerns included the need for greater consultation with Berkeley faculty who were moving into the planned college; the structural viability of a single department reporting to two academic units; issues of faculty and student welfare; the proposed arrangement of academic programs in the CDSS; the absence of academic rigor and disciplinary expertise pertaining to the social sciences as implied in the title of the proposed college; and its coordination with other units at Berkeley.

CCGA, UCEP, and UCPB found the full proposal did not adequately address these concerns. The committees also diverged in their ultimate recommendation to the Academic Council. In the case of such a disagreement, the Compendium requires the Council chair to act as an arbiter. The Compendium offers three options for the outcome of the Senate review of a new college: 1) approval; 2) disapproval with the expectation that the proposers will submit a revised full proposal; and 3) approval “contingent on the resolution of key issues raised by the reviews.” In the third scenario, the provost is tasked with working with the campus chancellor to resolve the remaining issues. Once resolved, the remaining approvals can be obtained from the president and the Board of Regents and the new college can be established.

I met with the chairs of CCGA, UCEP, and UCPB, and with the UC Berkeley Senate division chair to craft a plan for next steps. At its March 29 meeting, the Academic Council approved a motion to endorse the establishment of the CDSS contingent on UC Berkeley successfully meeting the following conditions by September 30, 2023. Meeting these conditions will help

<sup>1</sup> <https://senate.universityofcalifornia.edu/files/reports/rh-mb-ucb-cdss-pre-proposal.pdf>

respond to the key deficiencies of the current proposal as outlined above and facilitate the creation of a college that is appropriately student-centered, academically rigorous, and rooted in the benefits of shared governance. Below we have listed our three areas of greatest concern and stipulated the conditions that need to be met.

**Identified Concern 1:** First, all reviewers raised a concern about the placement of the Department of Electrical Engineering and Computer Sciences in both the College of Engineering (COE) and the CDSS, which would create a joint administrative structure for the department. Although the proposal indicates that both current administrators of these units agree to jointly govern and there is a letter from the dean of the COE with some specificity of that collaborative agreement, all committee reviewers suggested an MOU between the two units to reduce the risk of unnecessary duplication in personnel matters, staffing, and student management; confusion by both graduate students and undergraduates about how to seek redress for concerns they might have; and potential disagreement on general education requirements, etc. The matter could be resolved by using the mechanism of joint appointments and the establishment of a new department in the CDSS, but this is not the preference of the proposers.

1. The first condition the Academic Council sets for approval is establishing an MOU between the COE and CDSS articulating in detail all foreseeable matters of departmental concern and assigning primary responsibility for each to a single academic unit. This MOU should address a minimum of six key areas: 1) how efforts at fundraising for the EECS department will be handled and how proceeds to the two colleges will be allocated; 2) EECS faculty welfare including expectations of faculty workload, new FTE allocations, and how personnel merits and promotions, voting rights, and grievance and discipline matters are to be handled; 3) the distribution of campus resources from the colleges to the department, including budget allocations, indirect cost recovery sharing, instructional and space allocations, and other resources normally under the purview of a single dean; 4) admissions procedures and degrees offered for graduate and undergraduate students; 5) allocations for student support and welfare, such as teaching assistantships; and 6) departmental staff reporting lines.

**Identified Concern 2:** The full proposal lacks letters of support from key campus partners. The CDSS includes the term “Society” in its name but appears to include no faculty with such expertise in its current proposed composition. To meet the promise of its name and to respect the norms of disciplinary competency, the CDSS will depend on the formation of an augmented graduate group (AGG) and/or departments in the College of Letters and Science with “society” expertise and instructional efforts at least in the near term. While the proposal currently lacks academic rigor in its consideration of “society,” putting in place the right people and structure should contribute to addressing the matter in the future. In addition, given the size of the program, the CDSS will need to coordinate decisions surrounding admission and requirements for undergraduate degrees, such as the planned “domains” requirement, with other campus units especially in the College of Letters and Science.

The Academic Council sets as conditions for approval:

2. Obtaining a letter of support dated after March 29, 2023 from the executive dean of the College of L&S articulating availability of resources for the CDSS as well as expectations surrounding collaborations with the CDSS in managing the undergraduate mission at UCB. If need be, the two colleges can execute an MOU.
3. Obtaining a letter of support dated after March 29, 2023 for the establishment of the CDSS from the L&S Faculty Executive Committee.

4. Obtaining letters of support dated after March 29, 2023 from academic departments that currently provide or anticipate providing at least five “domains” courses of instruction for the CDSS undergraduate majors.
5. Constituting the Human Technology Futures (HTF) group as an AGG within the CDSS. This should include a letter of support dated after March 29, 2023 from the HTF for this action. The transfer and formation of the AGG would be subject to the usual Berkeley Senate review processes.

**Identified Concern 3:** The proposal lacks adequate discussion of faculty governance within the CDSS. The CDSS needs a faculty executive committee structure that adequately reflects the important contributions of faculty, balances the needs of all the units despite large differences in their size, and allows input from and includes representation from those in the CDSS including departments, school, and AGGs without duplication.

The Academic Council sets as conditions for approval:

6. Obtaining a letter of support dated after March 29, 2023 for establishment of the CDSS from each department and school proposed for inclusion in the CDSS along with a vote of the Senate faculty within each unit.
7. Articulating plans for the creation of a faculty executive committee within the college that includes faculty from the CDSS departments, school, and the AGGs.
8. Developing Senate bylaws for the new college.

We also request that the Berkeley Division of the Academic Senate provide assurances to the UC systemwide Academic Senate that Senate members in EECS will not obtain duplicative representation within the Senate by virtue of their membership in two colleges. This can be addressed by a letter from the divisional chair to the Academic Council chair.

In summary, the Academic Council endorses the establishment of the CDSS contingent on UC Berkeley successfully meeting the aforementioned eight conditions by September 30, 2023. Once completed, copies of all requested items are to be transmitted to both the systemwide and Berkeley divisional Senates.

Thank you for your assistance in this matter. We look forward to receiving these materials. All of us wish the best for UC Berkeley and their plans for a new college. Please do not hesitate to contact me if you have additional questions.

Sincerely,



Susan Cochran, Chair  
Academic Council

Cc: UCB Senate Division Chair Smart  
CCGA Chair Jaffe-Berg  
UCEP Chair Cocco  
UCPB Chair Senear  
Interim Chief of Staff Halimah  
Director Corona  
IRAP Analyst Procello  
UCB Senate Executive Director Banaria  
Executive Director Lin

**COORDINATING COMMITTEE ON GRADUATE AFFAIRS (CCGA)**

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[erithj@ucr.edu](mailto:erithj@ucr.edu)

**ACADEMIC SENATE**

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1111 Franklin Street, 12<sup>th</sup> Floor  
Oakland, California 94607-5200

March 16, 2023

**SUSAN COCHRAN, ACADEMIC COUNCIL CHAIR**

Dear Chair Cochran,

On February 1 and March 1, CCGA met and reviewed the proposal from the Berkeley campus for a new College of Computing, Data Science and Society (CDSS). After these discussions, the proposal was approved at the March meeting by a vote of 9-0-1.

The proposal for the establishment of the CDSS was strongly endorsed by the Chancellor and by the Berkeley Division of the Academic Senate. A preproposal was initially submitted in July 2021 and, based on feedback, further engagement and review within the UCB campus leadership and faculty, this revised proposal was presented. This will be the first new college on the UCB campus since the late 1960s.

In recent years, UC Berkeley's programs in computing and data science have been partnering with disciplines across campus to build research and education collaborations and meet growing student and employer demand. The Data Science major is the third largest major on the UCB campus and is characterized and supported by a multidisciplinary and cross-disciplinary institutional structure. The Berkeley Institute for Data Sciences (BIDS) which preceded CDSS, is a main component for the proposed college. It has already created synergies on campus by offering a variety of symposia, research, and training opportunities that have galvanized faculty and students focused on aspects of data science. These partnerships and the increased demand in the field led to the development of a proposal for a College of Computing, Data Science and Society.

New computing algorithms and platforms have become increasingly central to human interaction, communication, commerce, and the delivery of public services. New means of collecting and analyzing data are increasingly important in addressing the world's most urgent challenges: from biomedicine and health, to climate and sustainability, to human welfare and social justice. Thus, computing and data science have increasing relevance to, and implications for, society.

While the increased use of computing and data science is enabling major breakthroughs in communication, delivery of services, and decision-making, there are also substantial scientific and technical challenges and significant social and ethical concerns related to bias, privacy, access, equity, misinformation, and manipulation. The proposed CDSS proposes to address the opportunities and challenges in the field with an innovative interdisciplinary approach that centers questions of society and equity within the conversation on data science as a whole.

The CCGA Lead Reviewer and four additional reviewers with specialized knowledge in the field of computing, data science, and their effect on society studied the proposal. The reviewers were largely pleased with the quality and academic rigor reviewer of the program as well as the expertise of the faculty involved. Placement prospects for graduates are sound. However, the reviewers did have some questions regarding the following:

(1) Concerns about adequacy of the staff support for the development of a new college. Current plans were thought to be adequate, but barely so, and do not address anticipated further growth in enrollment.

(2) Support for the new CDSS relies in large part on philanthropy. Some concerns were raised about potential risk of raising sufficient funding within the context of a potential economic downturn.

(3) Several reviewers raised minor concerns about how programs within CDSS will be jointly shared and what impact this may have on faculty service and departmental culture, especially as relates to faculty in EECS and the I-School. One suggestion was for an MOU between the College of Engineering and CDSS with respect to governance of the EECS department, and with respect to undergraduates, graduate students, faculty and staff.

(4) Instructors may need additional training to bridge technical and societal issues. A clear plan was not detailed, given that most tenure-track faculty will join the CDSS from existing departments in L&S or Engineering.

These concerns were discussed with the CCGA at the February meeting, and the committee asked the Lead Reviewer to share these issues with the proposers. In the March CCGA meeting the proposers' responses were discussed.

One primary area of concern the CCGA discussed was the need to clarify the "Society" aspect of the CDSS. The Lead Reviewer communicated with the proposers who responded on February 27 with a copy of the response they had also sent to UCEP (which had directed the same question to them). The proposers relayed their commitment to integrating the "Society" portion as part of the broader intellectual transformations they anticipate the new college creating on campus. As they put it to us and in response to UCEP: "We cannot completely foresee how these intellectual transformations will play out, but we can put in place institutional structures – starting with the College of CDSS -- that support and advance that transformation." More specifically, they pointed to the School of Information which already spans computing with the humanities and social sciences as a model for how aspects of "society" will be integrated. They are also pursuing further interactions with other departments with areas that would be engaged with the "society" aspects. According to them, faculty from the professional schools and undergraduate divisions of arts and humanities and social sciences are also collaborating with the CDSS to create more clarity of institutional structures. Furthermore, faculty have joint appointments with their school and with other campus department representing society, and the CDSS is also pursuing new hires in the area of "society," such as a cluster of hires in artificial intelligence and inequality.

The response to this and other questions raised, the program proposers suggest that though many of these issues have been addressed, others are still in the process of being deliberated and worked out. CCGA discussed whether or not to approve a new college given this degree of ongoing clarification in terms of structure and design. One aspect of the proposal that CCGA found profoundly encouraging was that the CDSS proposal includes strong attempts to incorporate foundational aspects of DEI. In particular, the multiple entry points into the college

and data science major were thought to be strengths that will draw diverse types of students, or those potentially transferring from community colleges to the CDSS.

CCGA feels that this proposal is novel and strong and should be allowed to move forward. The Lead Reviewer's report is attached. Please do not hesitate to contact me if you have further questions regarding the proposal.

Sincerely,



Erith Jaffe-Berg  
CCGA Chair

cc: James Steintrager, Academic Council Vice Chair  
CCGA Members  
Monica Lin, Academic Senate Executive Director  
Michael LaBriola, Academic Senate Assistant Director  
Chris Procello, Academic Planning and Research Analyst  
Lisa García Bedolla, UCB Dean of the Graduate Division  
Jocelyn Surla Banaria, UCB Senate Executive Director  
Sumei Quiggle, UCB Senate Associate Director



COORDINATING COMMITTEE ON GRADUATE AFFAIRS (CCGA)  
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March 9, 2023

**CHANCELLOR CAROL T. CHRIST**

**RE:** Review for the UC Berkeley College of Computing, Data Science and Society (CDSS)

**Summary**

This document provides the review of the CDSS as prepared by the lead reviewer with input from four outside reviewers with specialized knowledge in the field of computing, data science and their effect on society. This document also summarizes the discussion and recommendation of the CCGA. A vote by the CCGA committee was held on March 1st, 2023. The CCGA committee voted unanimously (with one abstention due to COI) in support of the CDSS proposal. The key findings and recommendations:

- (1) Reviewers raised some concerns about adequacy of the staff support for the development of a new college. Current plans were thought to be adequate but barely so and do not address anticipated further growth in enrollment that would be anticipated for already oversubscribed majors. Some reviewers thought currently planned support was not adequate, in particular the small number of additional tenure-track faculty, versus the addition of administrative and non-tenure track instructors. The concern was that the current support and curriculum would have difficulty scaling.
- (2) Support for the new CDSS relies at least in part, if not largely, on philanthropy, with \$404 million already committed from various donors, much of it earmarked for a new Gateway Building. Some concerns were raised about potential risk of raising sufficient funding within the context of a potential economic downturn. Some reviewers indicated that specific plans for how funds already available will be used, since philanthropy cannot be relied upon and/or the donor agenda may not be the same as the goals of the CDSS.
- (3) Several reviewers raised minor concerns about how programs within CDSS will be jointly shared and what impact this may have on faculty service and departmental culture (i.e. as it relates to EECS and I-School). It was suggested that an MOU "between College of Engineering and CDSS with respect to the governance of the EECS department with respect to undergraduates, graduate students, faculty, and staff."
- (4) Instructors may need additional training to bridge technical and societal issues. A clear plan was not detailed, given that most tenure-track faculty will join the CDSS from existing departments in L&S or Engineering.

## Background

The UC Berkeley Campus submitted a proposal to the Coordinating Committee on Graduate Affairs (CCGA) for the establishment of a new College of Computing, Data Science and Society (CDSS) which was strongly endorsed by the Chancellor and the Berkeley Division of the Academic Senate.

A preproposal was initially submitted in July 2021 and based on feedback, a revised proposal was submitted. Internal preparation, engagement and review within the UCB Campus included with the deans of the schools, colleges and divisions and the faculty within the departments that will move into the CDSS. This would be the first new college on the UCB campus since the late 1960's.

The primary driving motivations were to create a college "... that integrates computing and data science with the social challenges created and addressable by them will be critical if UC Berkeley is to continue to be a force that addresses society's most critical challenges and trains the next generation of students to be able to tackle the problems of tomorrow." They propose that there are strengths and efficiencies for housing such research, teaching and outreach missions within the context of a separate college structure rather than being spread across several other departments and schools. "...the development of new methods in computation and data science need to integrate an understanding of how users will use them, the problem they need to address, and the impacts they will have on society (p3)." Examples of programs and departments within the college include the new UCB / UCSF that will be program in Computational Precision Health and a new department of Data Science, as well as to house new interdisciplinary initiatives.

The organization structure of the new college would incorporate three educational units: the Department of Statistics, the School of Information, and the Center for Computational Biology. Furthermore, the Department of Electrical Engineering and Computer Science (EECS) will be jointly administered by CDSS and the College of Engineering. Finally, the undergraduate majors of Data Science and L&S Computer Science would move to the CDSS. It is estimated that the CDSS would have an enrollment of ~ 2,900 undergraduates and confer ~ 1000 degrees annually.

Diversity, Equity and Inclusion aspects of the proposal: The CDSS proposal includes strong attempts to incorporate foundational aspects of DEI as the college is envisioned. The proposal notes the college is designed "...with considerations of diversity, equity, inclusion, belonging, and justice built in, rather than as desired properties to be bolted on after the fact. In this regard, it is worth noting that the students in our new data science major, which will be part of this new college, are 48% female and 7% underrepresented minorities, both high numbers for a STEM field." The undergraduate council mentioned " Many members found the proposal exciting and highlighted the emphases on diversity, community development, support for URM students, and multiple entry points and support for "discoverers" as very positive." In particular the multiple entry points into the college and data science major were thought to be strengths that drew diverse types of students, or those potentially transferring from community colleges to the CDSS.

**Reviewers:** The CDSS proposal was reviewed by four faculty with expertise in areas relevant to data science, society and computing: two faculty from within the UC system and two external faculty:

Greg Morrisett (Reviewer #1)  
Dean and Vice Provost Cornell Tech

Marina Sirota (Reviewer #2)  
Associate Professor  
Associate Director of Advocacy and Outreach  
Bakar Computational Health Sciences Institute (BCHSI)  
University of California, San Francisco



James Zou (Reviewer #3)  
Assistant Professor of Biomedical Data Science and,  
by courtesy, of Computer Science and  
Electrical Engineering at Stanford University.

Anonymous (Reviewer #4)  
Professor, Computational Biology  
UC System

### **Reviewers' summary and general comments on formation of the CDSS:**

**Reviewer #1** noted that the proposal was extremely strong and commented that " The primary motivation for forming colleges such as CIS or CDSS is manifest: digital data processing and communications are revolutionizing every field of human inquiry, from music to retail, from astronomy to genomics, from finance to film, etc. Students are drawn (in tremendous numbers) to these fields not only for job opportunities, but because they recognize the myriad doors opened by digital agency. At the same time, as they mature, we've come to recognize that digital technologies such as recommender systems, facial recognition, and autonomous drones can have devastating effects on society, and that the emergent tech industries have further exacerbated societal division. What is needed in universities is a more holistic, balanced inquiry that takes societal outcomes into account, without sacrificing the tremendous advances that digital technologies can bring to the world. " The reviewer also recommended that there should be further elaboration on how governance will be handled for different units and programs, for example how faculty which will be governed by the College of Engineering and CDSS will view their appointments and commitments. How will the I-School retain some autonomy and what will be the impact on its culture.

**Reviewer #2:** " With the increased need in understanding rigorous statistical methods and approaches and ways to analyze and integrate diverse types of data across disciplines, this proposal is very much in line with the student needs and interests especially in the context of training and future employment... This is an incredibly powerful combination of scientists and researchers bringing together expertise across different groups to achieve the same goal. " The reviewer also lauded the goals of the new CDSS as " The goals of the proposed college are very important including education of a diverse group of students, making data science, information, statistics, and computing programs truly accessible, advancing the methods and approaches, establishing new fields and enhance existing programs by bridging other disciplines and informing solutions to important human, scientific, technical, and societal challenges. " " In summary, the proposal for the new CDSS college is well thought out and exciting with buy-in across many different groups. It will take a considerable amount of work, fundraising and coordination but the leadership team and faculty are incredibly strong and dedicated to the proposed mission, which the students will benefit from greatly allowing for increased innovation and growth."

**Reviewer #3:** " Overall I'm excited by this ambitious proposal to establish the new college; it is timely and can be tremendously impactful if executed well." " CDSS leverages the world-class hubs of CS, Statistics, computational biology, AI/ML and adjacent areas at UC Berkeley. The faculties in each of the areas are top notch and CDSS can further enhance the strength of UC Berkeley in data science. I also like the structure of CDSS with both traditional departments and augmented graduate groups (e.g. Center for Computational Biology and the new Precision Health collaboration with UCSF) that more flexibly target new areas of interest and growth. "

**Reviewer #4:** "I am strongly supportive of the program. I provide several thoughts on the strengths and challenges for relevant aspects in the hope that they may be useful in its implementation. In particular, I encourage the leadership of the CCDS and the University to address the challenges of meeting the needs of the growing undergraduate majors in Data Science and Computer Science. "

## Key Review Criteria of the Proposal:

- Quality and academic rigor of the program:

**Reviewer #1:** " Berkeley has always had one of the (if not the) strongest programs in computer science and electrical engineering (EECS) since the fields were established, and the rise of the tech industry in Silicon Valley is one direct manifestation of Berkeley's EECS impact. Berkeley has also enjoyed tremendous strength in Information Science through the I-School, and most recently, has been the leading institution around the development of Data Science as a discipline, drawing upon the excellence of not only the relevant technical fields (Statistics, CS, EE, etc.) but also in the broad areas of application that only an institution such as Berkeley can provide.... Bringing all these components together in a unified unit is not only natural, but vital for both education and research."

**Reviewer #2:** " The quality and academic rigor of the program is superb combining faculty across different disciplines including data science and artificial intelligence; energy, climate, and environment; democracy and equality; health and basic discovery; and innovation and entrepreneurship. There is great focus on diversity, community development, support for URM students. In addition to very strong technical aspects of the program such as statistics and computer science, the proposal addresses the important issues that arise as a result of data analysis including ethical concerns related to bias, privacy, access, equity, misinformation, and manipulation. This is an incredibly challenging and quickly growing field but is essential to the success of the proposed college."

**Reviewer #3:** Regarding the rigor of the Data Science major an curriculum "...it would be helpful to see plans for how the major will accommodate students with more or less quantitative backgrounds while implementing a rigorous quantitative curriculum. For example, will there be different versions of core classes? What are the core competencies of students who graduate with a DS major?"

The reviewer also asked specific questions about what will differentiate specific majors and tracks within CDSS? Are some more quantitative, others more focused on societal issues, or do all touch upon these issues and if so what makes each track stand out? For example, " The proposal mentioned that in the I School, "new undergraduate course offerings in data ethics, ML, natural language processing, and information visualization have been developed." What is the unique part covered by the I School offerings and do they overlap with DS and CS classes? *Overall, a more complete roadmap of how all of these data science-related classes and curricula fit in together would provide clarity to both the instructors and students.* "

**Reviewer #4:** "I was surprised that only a single Human Contexts and Ethics (HCE) course was required within the Data Science curriculum. I would also encourage the addition of faculty with expertise in ethics and science and technology studies (STS) in the refinement of the core Data Science courses so that these concepts are not seen as an "elective" requirement, but a key component of data science. " Furthermore, suggestions include "There was no discussion of training in technical communication as part of the major. The successful data scientist must be conversant not only in the technical aspects of reasoning from data, but also in the communication of the implications of such analyses to audiences with diverse perspectives and knowledge. *I suggest integrating training in technical writing and presentation into the major.* "

- Adequacy of the size and expertise of faculty to administer the program:

**Reviewer #1:** " There is no doubt that the faculty have the expertise to make the college the world's leading unit combining computation and data science, and that being housed in a college will promote synergy and provide for some scaling efficiencies, particularly with respect to the challenges of advising and supporting a broad

range of students in the respective disciplines, and with respect to a unified vision that enables fund-raising. ***The overall size of the staff needed to support the college is what I would call “adequate”, but barely so...***the growth in both computer science and data science enrollments make it paramount to further invest in faculty and staff support, particularly when there is a goal to support historically under-represented groups, and students who only discover the fields after arriving at Berkeley."

**Reviewer #2:** " The expertise of faculty to lead and administer the program is truly impressive spanning a number of diverse disciplines allowing for incredible collaboration. "

**Reviewer #3:** Questioned whether there would be sufficient faculty support and whether class offerings could be expected to reasonably scale. " Based on the statistics provided in the proposal, CDSS will have one of the highest students to faculty ratios at UC Berkeley. We can expect this ratio to grow given the continuous interest in data science. Moreover, many Berkeley students currently have difficulties in enrolling in CS classes (especially in ML and data classes), further highlighting the demand-vs-supply gap."

**Reviewer #4:** "The expertise is present in the community. However, the key to success will be developing an integrated curriculum that can be taught at scale and funding the instructors needed to meet the growing demand. ***As proposed, the current size and funding is not appropriate to meet the demand for the program.*** Moreover, instructors may need additional training to appropriately integrate technical and societal perspectives. "

- Adequacy of the facilities and budgets:

The UCB Chancellor's statement notes that: "The formation of a new college will not be without challenges. It will be built, in no small part, on philanthropy, and the financials reflect this. The new College has already secured substantive philanthropic support for both its new building and its programs. With more than \$400 million already secured, we are confident that we will have the desired philanthropic support; that said, we have plans in place should we be less successful in obtaining philanthropic support than we expect. As noted by the Berkeley Division’s Committee on Academic Planning and Resource Allocation, “[t]he costs of administering [the new] college are not much greater than those for the [existing] division.” "

**Reviewer #1:** " The proposed structure, positions, and thus budget seem reasonable to me. The transition to a college from the current approved divisional structure would add only a handful of FTEs. The absolutely critical positions are faculty and staff that directly serve the instructional needs of students, given the tremendous scale that computer science and data science already have. "

**Reviewer #2:** "The proposal shows that revenue should outweigh incremental cost, allowing CDSS and its partners to be sustainable."

**Reviewer #3:** There was concern that most of the new hires will be administrative or non-tenure track: " While the proposal discussed some successes in raising funding to hire new tenure-track faculties, the number of new faculties mentioned seems quite small and is also smaller than the number of new non-tenure track or administrative positions mentioned. This is quite concerning. With the new DS major, there should be a proportional number of new tenure-track faculties doing core research and teaching in data science. It appears that many core DS classes will be taught by current Statistics and CS faculties, which can substantially increase the already significant strain on these researchers."

**Reviewer #4:** "The proposal identifies many substantial ongoing challenges with undergraduate instruction in computing at UC Berkeley. Addressing these are fundamental to the CDSS mission, especially since it proposes to expand data science education to even more students. However, the ways that the CDSS would address these problems were not sufficiently articulated. ***The only specific proposals were via philanthropy and combined advising for students in different computing majors. Philanthropy cannot be relied on and even when present, it is by itself insufficient to solve the challenge of high- quality quantitative education to thousands***

*of students from diverse backgrounds and interests.* I would have appreciated specific plans for how funds already available will be used. "

Furthermore, the concern was that CDSS would have to student enrollments unless ambitious philanthropy was achieved. As stated, "I was astonished to read that "CDSS has set an ambitious goal to raise at least 10 additional \$6 million gifts for teaching professorships that benefit Computer Science and Data Science majors, as well as both corporate and philanthropic funding of up to \$5 million annually for temporary academic support. This funding is necessary to prevent cutting the number of annual graduates in CS and DS by over 500, a cut that is being implemented over the next few years mainly due to lack of teaching faculty and temporary academic support." ***Thus, if this ambitious fund-raising goal is not met, CDSS will train 500 fewer students each year than it is currently. In my view, addressing this fundamental challenge to the core mission of the CDSS must be the primary priority of both the CDSS and the University.***"  
Suggested stronger industry engagement to support internships and other job experiences.

- Applicant pool and placement prospects for the graduates:

**Reviewer #1:** " The proposed college will have both attract a tremendous number of students and have relatively little problem placing them. The fields of inquiry (computer science, data science, information science, etc.) are precisely those where job growth is expected to be the largest over the coming decades." Regarding attracting diverse students and historically excluded students the reviewer comments that multiple curricular 'on ramps' from different educational tracts, the " advising structures, and overall curricula will go far to attract and support these students. Indeed, Berkeley has the opportunity to lead the nation in attracting and producing diverse graduates for these fields."

**Reviewer #2:** " Regarding competitive and placement prospects for the graduates, they are truly superb – data science is very much needed across disciplines and I have no doubt that the students who graduate from the college will have numerous employment opportunities."

**Reviewer #3:** Was concerned with achieving a critical mass especially amongst the augmented graduate groups: "While I really like the idea of AGG, it seems that some of the AGGs are quite small. For example, the Computational Biology AGG currently has 35 students currently enrolled in the Ph.D. program and 60 students enrolled in the DE program, across all years. I'm not sure if this is large enough for the students and faculties to have a coherent community and curriculum. Since some of the Computational Biology faculties will likely be involved in the new Precision Health AGG as well, it might be interesting to explore combining some of the related programs."

**Reviewer #4:** Felt the applicant pool and prospects for job placement were excellent  
"The proposal clearly establishes the excellent large applicant pool and desire for data science education at Berkeley. The success of the Division and associated educational programs over the past several years provide a strong foundation.  
- Even with recent reductions in staff at several major tech companies, the market for individuals with the skills taught in CDSS programs remains very strong."

The reviewer comments and the application were discussed at the CCGA meeting on February 1st, 2023. The committee raised a few clarifying questions about the integration of the societal aspect with other programs within the College of Letters and Science. The CDSS proposers responded to our inquiry on February 27, 2023 with a detailed engagement plan for the CDSS and other entities focused on "societal" aspects of data science and computing. On March 1st the proposal was discussed again before the full committee, including these additional points about engagement with the broader UC Berkeley faculty, and an affirmative vote was reached.

The CDSS is an exciting new college that will lead the University of California into the future by leveraging computational and data science and immersing such studies within the broader societal needs and compact. We look forward to seeing the college develop and flourish.

Sincerely,

A handwritten signature in cursive script that reads "Andrei Goga".

Andrei Goga, MD, PhD  
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UNIVERSITY COMMITTEE ON EDUCATIONAL POLICY (UCEP)  
Melanie Cocco, Chair  
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March 2, 2023

**SUSAN COCHRAN, CHAIR  
ACADEMIC COUNCIL**

**RE: UC BERKELEY PROPOSAL TO ESTABLISH A COLLEGE OF COMPUTING, DATA SCIENCE,  
AND SOCIETY**

Dear Susan,

The University of California Education Policy Committee (UCEP) of the Academic Senate discussed the UC Berkeley proposal to establish a College of Computing, Data Science, and Society (CDSS) at our meeting on February 6, 2023. Of the 11 attending members, the vote was unanimous to not endorse the proposal as written and request a revised proposal. UCEP members found significant concerns that should be addressed. Two proposals were submitted to UCEP for consideration. Our review was of the proposal entitled: UPDATED UCOP Transmission Packet for the CDSS College Proposal.6.16.2022.

The Berkeley CDSS College includes several units that are being moved from or shared with other colleges. One of these, the Department of Electrical Engineering and Computer Science (EECS) is extremely strong both nationally and internationally and will be shared with the College of Engineering. Two majors are currently offered through this department: (1) BS in Electrical Engineering and, (2) BA in Computer Science. The Computer Science major, which currently has >1700 students, will be moved from Letters and Sciences (L&S) to the new CDSS College (page 16). Three other units (one Program, one School, and one Department) are moving from the College of Letters and Sciences: the program in Data Science, the School of Information Science and the Department of Statistics. The program in Data Science was recently created in the College of Letters and Sciences and offers a popular and growing undergraduate major: the BA in Data Science currently has >1000 undergraduate majors (page 16). The School of Information will maintain its status as a School, but move to the CDSS College from Letters and Sciences. The School of Information offers several graduate degrees and provides undergraduate courses but does not offer an undergraduate degree. The Department of Statistics offers a BA in Statistics. The total number of students in the CDSS college is 2900 (Chancellors Letter, page 5). They expect to graduate 1500 students per year (page 16), making this one of the largest colleges on campus.

Although there are many strengths and a strong rationale for creating this new college, UCEP members identified several crucial structural flaws within the proposal: (1) EECS's formal status within two different colleges, (2) a lack of a strong rationale for disparate admissions criteria, (3) the inclusion of "and Society" in the college name without having a significant scholarly effort within the college toward the study of society, and (4) Berkeley faculty and student concerns.

Specific concerns are described below.

**CDSS College Structure.** Berkeley makes a strong case for elevating the Data Science and Information Science programs – largely based on need for the Data Science major and student interest in courses taught by these programs. The Data Science major is run through the college. Since this program is not a department, there are no faculty FTE specific to this major. This is concerning since the major has a large number of students enrolled. Since there is no Department of Data Science, decisions regarding the admissions and curriculum of this major are decided at the college level. Faculty members of the new CDSS College include 94 in EECS, 19 in Statistics and 13 in Information (Table 2, page 90). 75% of the voting members of CDSS are faculty in EECS; consequently, EECS will have a determining role in defining both the admissions and the curriculum of the Data Science major. To wit, the proposal states that: *The EECS Department under CDSS leadership will work with L&S and campus admissions to provide paths for students who discover their interest in CS or DS after arriving at UC Berkeley* (page 31). The movement of Data Sciences from L&S to CDSS with control by EECS will likely result in a change in culture for this major that is currently not defined. For example, the College of Engineering has General Education (GE) requirements that are different than those of Letters and Sciences – will GE requirements change for CDSS majors if EECS is making decisions about this major?

In addition, UCEP is concerned that EECS is reporting to two different colleges and two different deans. Can they provide more detail about how they intend to successfully navigate what UCEP sees as a complicated and unprecedented organizational/operational situation? How will resources be shared? Is there a detailed Memorandum of Understanding delineating responsibilities and relationships? How will Senate participation be handled for faculty who are formally members of two different colleges? Will Berkeley's Divisional Senate Council allow EECS faculty representatives to serve on Senate committees for both colleges (potentially doubling the number of representatives allowed from a single department)?

**Undergraduate Admissions.** Specific criteria for admission to majors within the CDSS was not clear and appears to be in flux. The proposal describes changes to the admissions process that will make it more "flexible." Currently majors transfer in after taking specific courses at Berkeley. The policy to have students declare a major after demonstrating competency in coursework appears to be designed to ensure student success in their programs. However, a new admissions initiative is presented in their "Plan to Attract Qualified, Competitive and Diverse Students" starting on page 21: *"It is likely CDSS will admit some students directly into the College of CDSS as first-year students after a thorough consultative process has been completed. It is anticipated that the majority of students will still transfer into CDSS when they declare a major in data science, statistics, or computer science."* They have decided to abandon the requirement to take specific Berkeley courses for admission to a major for some (diverse) students who will be invited to enter as freshmen. The goal of the freshman admission is to increase diversity in the student population with *"diverse students who (will) become qualified and competitive."* These students will then be included in majors composed of students required to demonstrate competency before transferring. Certainly, admitting students as freshman who meet diversity criteria will increase the diversity of the program, but it was not clear that these students will be successful in completing degrees – especially since they plan to change admission requirements: *"A key component of attracting qualified, competitive, and diverse students to CDSS degrees is admissions requirements. CDSS aims to keep the data science major open to all, and to transition the computer science major away from an admission standard dominated by GPA toward holistic assessment."* Failing out of a program is traumatizing to a student and is a very bad outcome compared to a student who simply decides to not transfer into a major after taking some lower division courses in that area. Can the proposal authors provide a stronger rationale for this change in admission process and a detailed plan to ensure the success of the freshman admits?

**Society.** UCEP members felt that it was unclear, and that not enough has been done to explain how "society" plays a role in the mission of the new school. Page 13: *"The addition of the so-called "second S" – society – signaled UC Berkeley's intent to ensure that computing and data science draw broadly from, and contribute broadly to, expertise across campus, and be as concerned with the applications and implications of data science and computing as with its foundations.* The "Computing" and "Data Science" components were clearly explained in the proposal. UCEP would appreciate knowing more about how the school will "contribute broadly" with respect to "Society" as part of the mission identified - but not described in the proposal. UCEP members noted that there are many examples of Data Science and Artificial Intelligence being used to harm society; ethical consequences of these tools should be a part of the curriculum – and possibly a degree requirement. Ideally, course(s) to address societal issues would be taught by


CDSS faculty. Currently, there are two courses offered as Data Science courses that include Social Justice. One of these courses is taught by a Professor in the History Department and the second has the Instructor of Record listed as a History Graduate Student. There is a course offered by Information Science faculty in Ethics, but this is capped at 141 students. There are two faculty in Information Science who have strong research programs in societal issues, but these are only 2 faculty out of the 128 faculty in the CDSS College, and they are in Information Science which will be dwarfed by the number of faculty in EECS.

In sum, it appears that the “Society” definition refers to the faculty outside CDSS from whom they will “draw broadly” to provide courses to their students. This is not the typical inspiration for a college name – usually the name reflects the strengths and activities within the unit. Does CDSS have specific plans to commit future FTEs to Society issues?

***Faculty and Student Concerns.*** Several Berkeley Senate Council memos refer to a letter written by the faculty in the School of Information. It appears that these faculty were sufficiently unhappy with the proposal that a letter was written not supporting the CDSS. We would like to see this issue addressed more transparently. Also, letters from the Administrators of the College of Letters and Sciences were not included. Will this new College have a negative impact in Letters and Sciences? In addition, UCEP is concerned that students did not have sufficient opportunity to provide feedback in this process. We request that Berkeley address this concern by explaining fully how students were engaged and by providing a response to student concern.

UCEP recognizes the strengths of the proposal and the overall rationale, but we have significant concerns about the complexity of the administrative structure, the apparent lack of thoughtfulness about student admissions and student/faculty input about the proposal, and the potential negative impacts that the proposed College may have on undergraduate student success and well-being. UCEP appreciates the opportunity to comment on this matter. Please contact me if you have any questions.

Sincerely,

A handwritten signature in black ink that reads "Melanie Cocco". The signature is written in a cursive, flowing style.

Melanie Cocco, Chair  
UCEP





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December 14, 2022

**SUSAN COCHRAN, CHAIR, ACADEMIC SENATE**

**RE: UC BERKELEY COLLEGE OF COMPUTING, DATA SCIENCE AND SOCIETY  
PROPOSAL**

Dear Susan,

UCPB has reviewed the proposal for the establishment of a College of Computing, Data Science and Society at UC Berkeley, which would be the first new college on the Berkeley campus in 50 years. The College is intended to provide a more coherent intellectual vision for data sciences on the campus, by integrating computing and data science activity with different areas of social challenge that these are increasingly being used to address. The campus already has internationally renowned programs in all of the relevant areas and it hopes that this integration will attract the most influential scholars in the field to the College. The associated programs proposed for the College are increasingly attractive to students. These have roughly 3,000 undergraduate and 1,500 graduate students studying in them at present. Two of the three largest majors on campus would be housed in this new College.

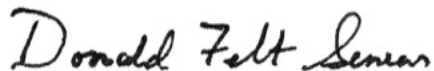
While attractive intellectually, the proposal raises concerns focused on questions about governance, financing, and impact on the wider campus. With respect to the first, some aspects of the proposal lack specificity or clarity. The organizational chart shows the different units but how this will operate to integrate these different units into the College is unclear. For example, the Dept of Electrical Engineering & Computer Science is to be jointly administered by CDSS and School of Engineering. The proposal lacks a MOU for governance; it relies on a conceptual framework that needs to be formalized to avoid internecine conflict in governance. There is significant overlap between units both within the College and with other campus units outside the College. An example is the Center for Computational Biology conceptualized as a free-standing component of the College. This overlaps with the Departments of Chemistry, Molecular & Cell Biology, Biological Engineering, and Environmental Science Policy & Management, which will remain outside of the College. UCPB is not fully convinced that this should be a free-standing, FTE-holding unit. Plans to address conflicting priorities need to be developed.

A second concern is the planned reliance on philanthropy and self-supported programs to fund projected growth of the College. The cost of administration should not differ significantly from the existing division and the faculty and staff in the units are already well-supported by FTE, and contracts and grants. However, there exists already a pressing demand for data science instruction, which the College is likely to exacerbate. The faculty workload among the existing majors is one of the highest on the campus. UCPB assumes that this demand will continue, and that the College is planning to meet that demand. A new building to house the College, which is both partially completed and only partially funded, illustrates both the considerable philanthropic success that the College has enjoyed and the reliance on its continuation. Interesting self-supporting programs that are envisioned offer a potential revenue stream to support the educational mission. But these have not yet been proposed or even fully planned. UCPB is concerned that the risk of a less rosy financial outcome has not been adequately addressed.

A key question that UCPB has about the planned College is its potential impact on existing departments and majors that are outside the division. Data is an area of inquiry in which Berkeley excels with many departments currently doing work in this area to great acclaim. The committee is concerned that the new College will be resourced to the detriment of these departments. In particular, there is no structure in the proposal currently to support social science work in data science. As the College responds to the demand of its phenomenal growth in majors will it, pull resources away from excellent majors such as economics and linguistics that are currently doing data science as part of their area? How will the new College affect FTE planning for the campus? These concerning issues raise a question about the level of consultation with the wider campus community that was done as this College was planned. The Committee did note that the proposal seems to be a way of addressing issues of growth in certain majors and that it may begin a conversation on campus about how to allocate resources based on current and future student numbers.

While Committee is very supportive of this new College and its integration of exciting and high demand areas of study, the underdevelopment of governance structures within the proposed College and articulation with existing programs campus-wide remains a concern. Planning for a future in which data science is increasingly integral to scholarship in many fields and in which data science as a stand-alone may not continue to command the numbers of students currently clamoring for these majors must be taken into consideration in order not to damage departments outside of the proposed College. Care needs to be taken to prevent faculty growth within this new College from unplanned negative effects on departments without. UCPB would like the proposers to engage with these concerns.

Sincerely,



Donald Senear, Chair  
UCPB

Attachment  
cc: UCPB, CCGA

## UCPB Program Review

Name and Location of Program: College of Computing, Data Sciences, and Society at UC Berkeley

Lead reviewer: Andrew Leuchter

This proposal would create a new College of Computing, Data Sciences, and Society (CDSS) on the UC Berkeley campus. This would be the first new college on the Berkeley campus in more than 50 years, and the campus has gone through an extensive process of consultation to prepare this proposal. The proposal is supported by the Chancellor, Deans from across the campus, and the Senate Divisional Council (DIVCO) as well as the committees on Academic Planning and Resources Allocation (CAPRA); Diversity, Equity and Campus Climate (DECC); Graduate Council (GC); and Undergraduate Council (UGC). The Committee on Budget and Interdepartmental Relations (BIR) commented on the proposal, but neither endorsed nor opposed it.

The new college is proposed in order to create a more coherent intellectual vision for CDSS on the Berkeley campus. Berkeley already has internationally renowned programs in all of the relevant areas of the new college, and the campus believes that this new entity will better position Berkeley to attract the world's most influential scholars of Data Science. A countervailing view expressed by many members of the Graduate Council was that the proposal is in fact "intellectually incoherent" because "every scientist and data scientist uses data science." Nevertheless, the Council did endorse the proposal.

The proposed new College is an incremental step in the evolution of data sciences at Berkeley. As the proposal points out, the campus formed a Division of Data Science and Information in November 2018, which was renamed the Division of Computing, Data Science, and Society (CDSS) in February 2020. The addition of "Society" to the name was intended to signal that the Division would "draw broadly from and contribute broadly to, expertise across campus, and be as concerned with the applications and implications of data science and computing as with its foundations." A L&S Data Science Major was approved in March 2018 by the Academic Senate followed by a data science minor in 2020.

CDSS will be groundbreaking as the "first . . . college [that unites]. . . computing and data science . . . with its social mission . . ." and that Berkeley is uniquely positioned to launch this effort "[a]s the university with the #1 ranked undergraduate data science program and #1 ranked undergraduate computer science program." The College will bring together into a single unit the Data Science Undergraduate Studies (DSUS) program, the Department of Statistics, the School of Information (I School), the Center for Computational Biology (CCB), and the Berkeley Institute for Data Science (BIDS), and the Department of Electrical Engineering and Computer Sciences (EECS) which will be administered jointly with the College of Engineering (COE). CDSS also will house the joint program with UCSF for the Computational Precision Health (CPH). CDSS will bring together nationally ranked programs in data science, computer science, and statistics that both the undergraduate and graduate levels that already are teaching more than 3000 undergraduate students and 1500 graduate students each year. Two of the three largest majors on campus (computer science and data science) will be housed in CDSS.

The proposal is incomplete is addressing various governance concerns. There is an org chart that

presents a reporting structure for CDSS, but issues regarding how the function of the units will be integrated are not adequately addressed. There are issues surrounding overlap among the units within CDSS, as well as between CDSS units and other entities on campus: in particular, the Center for Computational Biology (CCB) overlaps with a number of other departments on campus (most notably Chemistry, Molecular and Cell Biology, Bioengineering, Environmental Science, Policy & Management) and the justification for its status as an FTE-holding department is not clear. Several Senate committees commented that the joint administration of EECS between CDSS and Engineering is unnecessarily complicated and problematic, and it is unclear how in the absence of an MOU or some explicit governance structure this will actually work. The faculty of the I-School have preexisting and ongoing concerns about their current status within the Division, and these are not addressed (nor are they seemingly exacerbated) by the transition from a Division to a College.

While the Divisional senate was supportive of the creation of CDSS, it recognized that there are serious challenges that the new College will face that have not been thoroughly addressed in the proposal. Foremost among these is enormous growth in demand for instruction in data science and the limited resources to meet the demand. There is insufficient discussion of how CDSS will deal with the challenge of overwhelming demand from the standpoints of faculty instructional workload and providing sufficient undergraduate advising. There is insufficient detail in plans to manage undergraduate admissions. While various contingencies are discussed, the issues of whether and how to constrain access to data science instruction at the undergraduate level are current problems and may be exacerbated by the success of the new College. The challenge of how to support and fund teaching and advising represent current challenges and “will remain daunting issues no matter what administrative structure(s) ultimately house Berkeley’s data science programs.”

In terms of funding, the first phase (transition from a Division to a College) is adequately addressed. The proposal notes that CDSS already is a Division and that the costs of administering the College are not much greater than those for the Division (incremental costs of \$519,000 for FY23 increasing to \$1.2 million for FY27, roughly 1% of the total cost of the unit). The faculty and staff of the separate units already are fully supported by FTE, contracts, and grants, and this support will continue in the new college. Comparisons are provided of the number of FTE and instructional workload (both graduate and undergraduate) for CDSS and other colleges and divisions. The number of FTE are comparable to other units, with the instructional workload being larger than all other units except for Engineering.

Beyond this initial phase, the proposal relies heavily on fundraising. To maintain steady state and sustain growth, the proposed budget is dependent upon revenue from new certificate programs, self-supporting degree programs, and philanthropy. The proposal states that “expected revenues from philanthropy (and self-supporting programs. . . ) are anticipated to cover the majority of the difference in cost between a fully built-out division as already approved and the formation of a college . . .” CDSS already has had considerable success at philanthropy, but the assumptions ongoing gifts were criticized by some of the reviewing entities as being “overly optimistic.” Since late 2019, the campus has raised \$409 million in gifts of over \$1 million toward endowed faculty positions, graduate student fellowships, various new programs, and the Gateway Building project. Another \$255M is needed to complete the Gateway project alone. The proposal notes that CDSS also presents an attractive naming opportunity for donors. The financial projections for fiscal integrity of CDSS are heavily dependent upon revenue from certificate and self-supporting Masters programs (some but not all of which exist and/or are approved). Existing programs are projected to be profitable immediately and to reach \$8-10M per year over five years.

The proposal does present by contingency plans in the event that proposed funding streams are not available or are smaller than expected. The proposed savings would arise primarily from from cutting administrative costs and limiting enrollment and would amount to approximately \$2.3M, a modest amount relative to the overall budget and large scale of CDSS.

The proposal presents fairly detailed plans for promoting diversity in faculty hiring, and in support for a diverse student population. The proposal notes that representation of women and minorities in the existing data science major, while not optimal, is already high for a STEM major and there are strategies and support for further increases in CDSS. The Senate Committee on Diversity, Equity, and Campus Climate recommended further development of strategic plans and benchmarks for success, as well as an Executive Advisory Committee to monitor and evaluate progress.