



320 STEPHENS HALL
UNIVERSITY OF CALIFORNIA

October 6, 2015

CHANCELLOR NICHOLAS DIRKS

EXECUTIVE VICE CHANCELLOR AND PROVOST CLAUDE STEELE

Subject: The Data Sciences Initiative

Dear Nick and Claude,

At the September 21, 2015 Divisional Council (DIVCO) meeting, there was a lengthy discussion of the Data Sciences Initiative (DSI). The discussion was precipitated by course approval requests received by the Committee on Courses of Instruction (COCI) and a general desire among the DIVCO membership to have a better understanding of this initiative; a desire that reflects the realization that the Initiative could have a significant impact on the undergraduate curriculum and the utilization of campus resources, including possibly faculty positions. That discussion was informed by the Data Sciences Education Rapid Action Team's document "Data Sciences@Berkeley — The Undergraduate Experience" (the January 19, 2015 version).

Much of the DIVCO discussion was laudatory, especially with respect to the entrepreneurial spirit and creativity of the faculty leading the effort, their addressing potential weaknesses in our students' ability to conduct and assess various forms of data analysis, and with respect to the Initiative's goal of fostering the use of data analysis across many fields of study. At the same time, concerns were raised. A proposal was made and passed to forward those concerns to you. A draft of this document was subsequently reviewed and amended at the October 5, 2015 DIVCO meeting.

The principal concerns, to which many of the others are corollaries, are, first, that the Academic Senate is being asked to weigh in on certain aspects of the Initiative (such as the introductory and connector courses) without a full picture of what the Initiative will

entail; and, second, that the Senate, especially the relevant committees, are less involved in painting that picture than we think ideal.

The following is a more detailed list of concerns:

- What are the full resource implications of the DSI with regard to (i) the feasibility of adding six units of required coursework to existing requirements (this could be especially critical in engineering, where curricular flexibility is limited); (ii) space, including potential need to reconfigure space to accommodate proposed pedagogic methods; (iii) the cost of administering the initiative; and (iv) its implication for faculty FTE allocations?
- How does the DSI fit within the Undergraduate Initiative (UGI)? Who, if anyone, is coordinating DSI planning with the UGI? DIVCO notes, in this regard, that, at various stages, the UGI has also contemplated adding various requirements to the undergraduate curriculum.
- Related to the previous two bullets, what will we cease doing both to make room and to afford the DSI (and other initiatives)? Among DIVCO's concerns is that if we expand what we do without sunseting any current activities, then, being realistic about resources, we will be doing too much with too little, including possibly further starving core areas, all of which would be at odds with our aspirations for excellence in those activities and programs we choose to pursue.
- It was not wholly clear what were the problems and issues that the DSI sought to address. To what extent are the curricular components driven by a desire to relieve enrollment pressures on CS 61A and other computer science courses? What evidence exists that our students are getting too little instruction in data analysis and empirical methods? (And by what metric is "too little" defined?) What is the evidence that *all* students would benefit from such a series of core and connector courses? How realistic is it to imagine a single required course in this area that would be appropriate for a student body that is highly heterogeneous in terms of quantitative background and skills?
- Has the Rapid Action Team or others surveyed what currently exists on campus, how it is functioning, and how it might be integrated into the DSI? Are there existing structures or models that could be utilized, such as "course threads"?
- If the DS core and connector courses become a significant or required feature of the lower-division experience, what will be the effect on junior-college transfers and transfer pathways?

In light of these concerns, DIVCO makes the following proposals:

1. Ensure that the Data Sciences Planning Initiative committee and its Faculty Advisory board be broad-based, academically diverse,² and have substantial

¹ We are aware that a complete picture likely does not yet exist. We know there is ongoing planning through a Data Sciences Planning Initiative committee co-chaired by David Culler and Anno Saxenian, as well as a still-in-formation Faculty Advisory Board, chaired by Cathryn Carson and Bob Jacobsen.

- representation chosen by the Academic Senate. Although such representation would not obviate the need for appropriate Senate review of the relevant components of the DSI, having representatives from key Senate committees such as Budget and Interdepartmental Relations (BIR), COCI, the Undergraduate Council (UGC), and so forth will expedite such review and help to clear the path.
2. That the administration, in consultation with the Senate, determine how the various initiatives (*e.g.*, DSI, UGI, Arts, etc.) should be integrated, what their resource implications are, develop prudent and realistic funding plans for them, and, to the degree budgetary and other constraints dictate, set priorities among them.

With respect to #2, I note that part of the September 21, 2015 DIVCO proposal was to ask Division Vice Chair Powell and me to meet with Vice Provosts Broughton and Szeri to discuss those issues and gather further information; they graciously agreed to meet with us (indeed, this meeting will have occurred prior to your receipt of this document). DIVCO expects #1 should not be objectionable in light of the campus's strong tradition of shared governance and the potential impact of the DSI on all undergraduates.

It is the Council's hope that by sending this communication, it can help those engaged in the planning process for this initiative anticipate faculty concerns; to the extent these concerns apply to other similar planning on campus, it is Council's hope that they will serve a similar function for those broader activities. It is likely that various Senate committees will invite appropriate members of the administration or the DSI planning committees to speak with them about developments.

As always, the Senate leadership or, if warranted, the entire Divisional Council are available for further consultation.

On behalf of the Divisional Council,



Benjamin E. Hermalin
Chair, Berkeley Division of the Academic Senate
Thomas & Alison Schneider Distinguished Professor of Finance and Professor of Economics

CC: Janet Broughton, Vice Provost for the Faculty
Andrew Szeri, Vice Provost Strategic Academic and Facilities Planning

² The Rapid Action Team had only two members not from EECS, Statistics, or the I School. In particular, it had no representation from College of Chemistry, College of Environmental Design, College of Natural Resources, Division of Biological Sciences, Division of Humanities, or Haas.