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BOARD OF ADMISSIONS AND RELATIONS WITH SCHOOLS (BOARS)   Assembly of the Academic Senate
Barbara Knowlton, Chair   1111 Franklin Street, 12th Floor
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July 7, 2023

LINDA DARLING-HAMMOND, PRESIDENT
STATE BOARD OF EDUCATION

RE: Proposed 2023 Mathematics Framework for California Public Schools, Kindergarten Through Grade Twelve

Dear Linda,

The University of California (UC) Board of Admissions and Relations with Schools (BOARS) has discussed the proposed K-12 Mathematics Framework, and we write to provide clarified language for the framework's reference to BOARS' 2020 policy actions on page 34 of Chapter 8:

> 831   Like Inez, students who decide to switch pathways (at high schools that offer multiple
> 832   paths) can take advantage of the increasing flexibility afforded to those planning to enter
> 833   a university upon graduation in terms of which courses count for admission. In October
> 834   2020, the University of California (UC) system updated the mathematics (area C)
> 835   course criteria and guidelines for the 2021–22 school year and beyond (University of
> 836   California, 2020). The update includes the allowance of courses in data science to serve
> 837   as the required third (or recommended fourth) year of mathematics coursework. For
> 838   additional information on data science, see chapter 5. The entire revised UC
> 839   mathematics (area C) course criteria are located at https://hs-
> 840   articulation.ucop.edu/guide/a-g-subject-requirements/c-mathematics/.¶

(https://www.cde.ca.gov/ci/ma/cf/ Chapter 8: Mathematics: Investigating and Connecting, High School, p. 34)

Specifically, the revision we request is as follows:

> In October 2020, the University of California (UC) system updated the mathematics (area C) course criteria and guidelines for the 2021-22 school year and beyond (University of California, 2020). The update includes allowance of courses in ~~advanced mathematics~~ ~~data science~~ to serve as the required third (or recommended fourth) year of mathematics coursework. Examples of such courses include, but are not limited to, applied mathematics, calculus, computer science, data science, discrete mathematics, linear algebra, pre-calculus (analytic geometry and mathematical analysis), probability, statistics, and trigonometry. ~~For additional information on data science, see Chapter 5.~~ The entire revised UC mathematics (area C) course criteria are located at https://hs-articulation.ucop.edu/guide/a-g-subject-requirements/c-mathematics/.

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Furthermore, BOARS has recently updated its statement on mathematics preparation for UC: https://senate.universityofcalifornia.edu/_files/committees/boars/documents/statement-on-mathematics-preparation-for-uc.pdf

Moreover, we would like to comment on Figure 8.4 and the text in the description for figure 8.4, which reads: "The later course options include (in no particular order): Computer Science, Algebra II, Mathematics III, Statistics, Data Science I, II, Precalculus, Calculus, Discrete Math, Financial Algebra, and Other Math." This statement implies that Data Science could be taken instead of Algebra II, which is problematic because Data Science is not well defined; indeed, BOARS will be examining the content of Data Science courses going forward.

There is significant discussion on BOARS as to whether the data science courses currently approved by the Office of the President's high school articulation team will in future be allowed to serve as the required third year of mathematics coursework. The data science courses that have to date been approved by UCOP's high school articulation team appear not to have been designed as third- or fourth-year mathematics courses. We recommend removing the words "Data Science" for the time being from the examples of courses that substantially align with Common Core standards for "Advanced Mathematics."

Finally, p. 36 refers to the BOARS statement of 2016 and the UC High School Articulation Department's 2020 policy shift. It then reads, "Many other students with different future intentions, such as social science degrees, may be better served with courses that lead to data sciences and statistics." This language is misleading for the reasons noted above. The text from this sentence to the end of the section takes the BOARS statement of 2016 as justification of its position. BOARS requests that you delete the any mention of BOARS and UC in this section, unless to refer to the revised statement above.

Thank you for your consideration.

Sincerely,

Barbara Knowlton
BOARS Chair

cc: Members of the Board of Admissions and Relations with Schools (BOARS)
        Executive Director Lin