

Board of Admissions and Relations with Schools

Minutes of Meeting

July 7, 2023

I. Chair's Announcements

Barbara Knowlton, BOARS Chair

1. General Updates

- The annual report on Comprehensive Review outcomes for the fall 2022 admission cycle has been submitted to the administration and posted on the BOARS webpage.
- The downstream impacts and unintended consequences of pending legislation could up-end transfer admissions throughout the system. AB 1749 would require UC to accept all Associate Degrees for Transfer (ADTs), even though many would not academically prepare students for the UC. The legislation would also give preferential admission to students from community colleges geographically closest to UC campuses.

2. Other Committees

No reports.

3. Memo to California State Board of Education re Proposed California Math Framework

Pending before the California State Board of Education (SBE) is a proposed California Math Framework (CMF) intended to align public elementary and secondary school math instruction with Common Core learning goals. In it, BOARS' statements on math preparation have been cited, but incorrectly framed. The appropriateness of BOARS being cited in the CMF at all was questioned. The capacity of data science courses to prepare students for the quantitative reasoning requirement at UC was also questioned. Even though the CMF drafting process has been underway for nearly 4 years, the current draft only had one week for review and public comment. Further, BOARS, on the day, only has a short time to consider the text clarifications and other issues raised in regard to the draft CMF.

As the deadline for public comment on the CMF was noon, before completing deliberations around Area C BOARS submitted a comment shortly before noon as follows:

*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."*

## II. BOARS Business

### 1. Area C Concerns

*With Jelani Nelson, UCB, EECS*

*With Jim Stigler, UCLA, Psychology*

BOARS heard from advocates of different approaches to math instruction. Professor Nelson noted the longstanding Academic Senate requirement that to satisfy the Area C requirement students must take Algebra II (or equivalent), or advanced math courses for which Algebra II is a true prerequisite. He further noted that no systemwide review occurred to update this advanced algebra requirement, and so UC approval of courses that do not meet this standard is invalid. Professor Stigler, a developer of a high school data science course, encourages greater flexibility, which may include data science as a substitute for Algebra II.

Proponents of maintaining the requirement of Algebra II or advanced math courses that validate Algebra II in fact and not just in name are concerned that existing high school data science courses are not academically rigorous enough, and that courses approved under the data science rubric do not sufficiently require demonstration of mastery of key concepts traditionally taught in Algebra II-type courses. As a result, students are entering UC underprepared, negatively impacting their student experience and time to degree. It also seems that high school data science courses that aim to substitute for Algebra II are proliferating more quickly in under-resourced schools which typically have higher enrollments of students from underrepresented-in-STEM groups. This may limit disproportionately limit opportunities for these students, especially in STEM fields.

Proponents of the alternate approach note that, currently, math instruction is challenging for a very considerable proportion of students from *all* backgrounds – 44% of high school students do not complete two semesters of Algebra II. How math is taught needs to be reexamined, and for many students the full content of Algebra II may not be relevant to their further studies in non-STEM fields.

After the guests were excused, deliberation continued. Academic Council Chair Cochran encouraged members to include consideration of the external political situation surrounding this now high-profile topic, and so to act thoughtfully. Learning outcome data remain sparse, and impacts to students already in the pipeline should be considered, too. At least one of the data science courses that has raised considerable concern has been approved since 2016. Some members, however, argued repeatedly that it is important to take prompt action to restore compliance with Senate Regulations, and limit the potential harm to students through their being underprepared for study at UC.

Discussion then turned to the potential establishment of a workgroup to better define appropriate content standards for advanced math. It was suggested that BOARS could wait for answers from such a workgroup before taking action. Some members reiterated their concern

that specific, named courses did not satisfy the existing criteria, and so rescission of validation should occur immediately. Others suggested considering alternate ways of enforcing extant standards than the current articulation process. It was agreed that each campus would nominate one member of the work group to the University Committee on Committees (UCOC). These nominees could be developers of university-level data science curricula but should not be purveyors of high school curricula, given the clear conflict of interest. Chair Knowlton nominated Joshua Berke as an incumbent BOARS representative to the work group. Berke agreed to serve.

The relatively new nature of data science as an academic field further challenges articulation of underlying standards. Most data science courses approved to meet Area C are categorized under the Statistics or Other disciplines of advanced math. Whether specific data science courses actually require familiarity with Algebra II-level core concept prerequisites was again questioned.

The role of BOARS in the consideration of individual courses, rather than setting policy guidelines, arose <sup>1</sup>. The limited competency of the current BOARS membership to determine standards for advanced mathematics core concepts absent the input of subject-matter experts was also recognized. In addition to possible content changes, the timing and delivery of advisory and counseling communications must also be considered.

By the end of discussion there was broad consensus by BOARS members for a coordinated approach: enforcing existing Area C standards, while also launching a formal process to review those standards.

In a first decision, BOARS unanimously voted in favor of the following motion: "Data science courses approved in the Statistics or Other advanced math category no longer validate Algebra II." <sup>2</sup>

There was agreement that some cohorts of students who have already taken / are taking data science courses under the prior guidance that these validated Algebra II, should be grandfathered in. Also that courses that are genuinely "advanced math" by virtue of assuming mastery of Algebra II, may continue to receive approval as validating Algebra II.

When and how BOARS should issue information about its decisions was an issue of concern, especially given the timing of the application cycle. There was agreement that it was urgent to send word of this meeting's decisions to SBE, as it could affect their decision making. There was also agreement that the information about Areas A-G that is made available to high school kids and parents, due for release in a couple of weeks, should be updated to indicate that data science courses no longer validate Algebra II.

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<sup>1</sup> The ability of BOARS to dis/approve individual courses is clearly established in the BOARS Bylaw.

<sup>2</sup> It is not customary for Academic Senate minutes to directly quote confidential deliberations, but given external events, exceptions have been considered.

The composition of a dedicated workgroup should be carefully considered. Indeed, membership of a prior workgroup was criticized earlier in this meeting. Campus input, expertise, and lack of conflict of interest were all suggested as parameters for identifying new workgroup members. The workgroup review should include (1) all math preparation requirements (e.g., SRs 424 and 428), not just those identified by this conversation ((2) geometry validation was noted as an item that would benefit from clarification). The priority is to determine what math preparation students currently need for study at UC, and ensure regulations are well-aligned with this standard.

It was agreed that each campus Academic Senate would submit the names of nominees to the work group once a charge was issued, and that the workgroup would report back to BOARS with recommendations for potential revisions to the relevant Senate Regulations. BOARS will consider these, and decide whether to forward the recommended changes for systemwide review.

In a second decision, BOARS unanimously voted in favor of the following motion: "Establish a Workgroup to consider the Senate Regulation standards for advanced math and geometry."

Recommendations from the workgroup, if delivered by December 2023, might allow time for fall 2025 applicants to adapt, while grandfathering fall 2024 applicants (although some members noted that the time required for systemwide review is uncertain). Academic performance impacts of the COVID pandemic should also be recognized.

➤ Members should send work group nominations to the Chair, and divisional chairs will be solicited, too. Overlap with continuing BOARS members is desired, as well.

2. Credit by Examination Concerns

Note: Item not addressed.

**III. Consultation with Academic Senate Leadership**

*Susan Cochran, Academic Council Chair*

*Jim Steintrager, Academic Council Vice Chair*

1. AB 1749 Implications

Note: Item not addressed.

**IV. Further Discussion and New Business**

None.

Adjournment: 1:55 pm

Minute prepared by Kenneth Feer, Principal Analyst

Attest: Barbara Knowlton, BOARS Chair

Attendance:

Barbara Knowlton, Chair

Sophie Volpp, UCB

Sergio Gago-Masague, UCI

Robert Watson, UCLA

Charlie Eaton, UCM

Pete Sadler, UCR

Akos Rona-Tas, UCSD

Josh Berke, UCSF

Greg Mitchell, UCSB

Laura Giuliano, UCSC