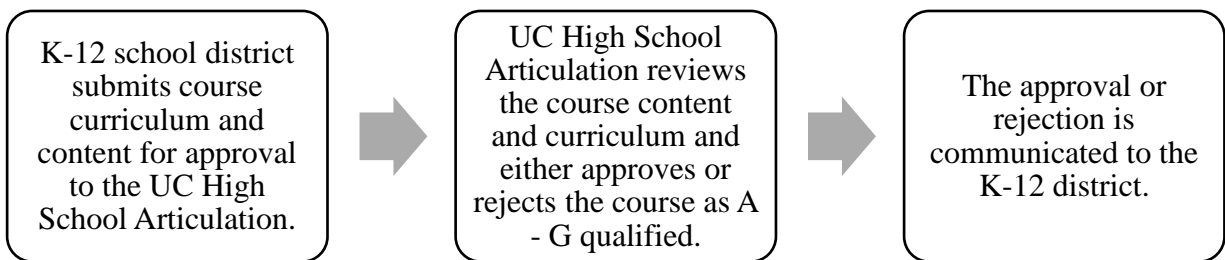


1) Major Decision makers and their role in University of California (UC) admissions:

- a) University of California Office of the President (UCOP) – The UCOP is the central systemwide office of the UC system. The system is governed by both the UC Board of Regents and the UC President, Dr. Michael Drake. The UCOP supports campuses and students by managing funding, policies, labor relations, and legal services for all 10 UC campuses.
- b) High School Articulation in the UCOP – Although mentioned multiple times in various board meeting minutes, the High School Articulation Unit is an official office listed on the UCOP website. Instead those who have been representing the High School Articulation Unit are part of *Enrollment Services*. Contained within Enrollment Services are the regent policies that would govern admission to the UC for high school applicants; however, the links no longer exist and instead redirect the user to the Board of Admissions and Relations with Schools (BOARS). According to documents published by BOARS and the UC Regents, the role of the UC High School Articulation is to examine submitted high school course curriculum to determine whether the course content contains the necessary content for A-G course approval (see diagram below).



- c) Board of Admission and Relations with Schools (BOARS) – BOARS is a subdivision of the UC Systemwide Academic Senate. BOARS oversees all matters relating to the admission of undergraduate students. BOARS recommends the admission criteria for determining which high school applicant is qualified for admission to the UC; the final

decision of admission criteria ultimately lies with the UC Board of Regents. *According to UC Regent's policy 2102, if any conditions for admission are changed by BOARS or the Academic Senate, the UC Regents must approve it.* Furthermore, according to the UC Academic Senate bylaws, BOARS (not the UCOP High School Articulation) is responsible for reviewing the high school courses that meet the requirements of A – G admission criteria. BOARS is not subject to the Bagley-Keene Act and therefore their meetings are not accessible to the public.

- d) UC Academic Senate – The UC Academic Senate is comprised of faculty representatives whose primary responsibility is to represent the faculty in the University's governance structure. The UC Academic Senate has influence over career advancement and the quality of UC's faculty through its recommendations to the chancellors, deans, and chairs on appointments and promotions. In addition, it protects the professional environment for faculty members with committees devoted to preserving academic freedom and assuring due process in personnel matters. The UC Academic Senate adopts the regulations for admission based on the feedback and recommendations provided by BOARS.
- e) UC Board of Regents (UC Regents) – The UC Regents are the appointed board of representatives that oversee the governance of the UC System. The 26 member board includes 18 members who are appointed by the Governor, seven ex-officials (state-elected officials who participate on the board), and one student regent. The UC Regents adopt bylaws, regulations, and policies for the governance of the UC System. There are 10 subcommittees of the UC Regents including the Academic and Student Affairs Committee. Technically, the requirements for admission to the UC (for both incoming

freshmen and transfer students) are under the oversight of the UC Regents and any decision by the UC Academic Senate could be overturned or approved by the Regents.

- f) State Board of Education (SBE) – The SBE adopts the content standards and framework for the California K-12 system. The content standards and the framework are the required “subject matter” or the “learning objectives” a K-12 district must teach their students.
- g) Intersegmental Committee of the Academic Senates (ICAS) – was established by faculty in 1980 as a voluntary organization consisting of representatives of the Academic Senates of the three segments of public higher education in California. Each segment’s academic senate appoints five or six senate leaders as representatives to ICAS. ICAS deals with a variety of issues of mutual concern such as student preparation for postsecondary education, the California Master Plan for Higher Education, access, transfer, articulation, general education, and educational quality and standards. The recommendations of ICAS are made to the Academic Senates of each of the three segments.

2) *Existing A – G requirements for the University of California (UC) and the California State University (CSU)*

High School Subject Area	UC A-G Requirements	CSU A-G Requirements
Social Studies/Science (Area A)	Two years of history/social science, including one year of U.S. history or one-half year of U.S. history and one-half year of civics or American government; and one year of world history, cultures, and geography.	Two years, including one year of U.S. history or U.S. history and government and one year of other approved social science.
English (Area B)	Four years of approved courses	Four years of approved courses
Mathematics (Area C)	Three years, including algebra, geometry, and intermediate algebra. Four years recommended.	Three years, including algebra, intermediate algebra, and geometry.

Science (Area D)	Two years with lab required, chosen from biology, chemistry, and physics. Three years recommended.	Two years, including one year of biological and one year of physical science with lab.
Foreign Language (Area E)	Two years in same language required. Three years recommended.	Two years in same language required.
Visual and Performing Arts (Area F)	One year of visual and performing arts chosen from the following: dance, drama/theater, music, or visual art.	One year of visual and performing arts chosen from the following: dance, drama/theater, music, or visual art.
Electives (Area G)	One year in an approved academic course.	One year in an approved academic course.
Total	15 (7 course must be completed in last two years of high school)	15

3) *Timeline of the BOARS Area C Decision –*

Date/Event	Description	Outcome
2010	State Board of Education Adopted Common Core Standards as the new college-preparatory standards in mathematics and English language arts for California’s public K-12 schools. ¹	New courses added for Math and English for high school students.
2013-2014	BOARS partners with the UC High School Articulation to convene faculty discipline workgroups to revise course criteria for A-G requirements to align with the new Common Core standards. Proposed changes were reviewed by K-12, CSU, and the UC constituents before the changes to the course policies were approved by BOARS.	BOARS issues two statements: <ol style="list-style-type: none"> 1. UC will accept both the traditional mathematics pathway (Algebra I – Geometry – Algebra II) or the Common Core integrated math pathway (Math I-II-III) for purpose of fulfilling Area C of the A-G requirements or “Basic Math”; and, 2. Basic math for all entry UC students should match the same requirements for transfer students to the UC.

¹ <https://regents.universityofcalifornia.edu/minutes/2023/acad11.pdf>

<p>Spring 2020</p>	<p>UC High School Articulation convened a workgroup of UC Mathematics and statistics faculty to confirm the types of high school math course that could be accepted to fulfill Area C subject requirements beyond the traditional or integrated pathway.</p> <p>The workgroup primarily focused on what would be defined as an advance mathematics course or courses that would follow the basic math requirements for purposes of admission.</p>	<p>BOARS unanimously endorsed these Area C policy changes.</p>
<p>October 2020</p>	<p>UC announced updated mathematics policy effective for the 2021-2022 school year and onward.</p>	<p>The announcement clarified what constituted advanced math, but also clarified that by completing a more advanced math course students would have completed the Area C requirements.</p>
<p>November 2021</p>	<p>UC High School Articulation convened another workgroup consisting of UC mathematics and statics faculty on behalf of BOARS to answer questions about how the new proposed K-12 mathematics framework would impact Area C.</p>	<p>The workgroup provided a letter and recommendations to BOARS in May 2022 regarding their concerns with the new mathematics framework.</p>
<p>July 2022</p>	<p>UC BOARS provided feedback to the State Board of Education on the 2023 K-12 mathematics framework.</p>	<p>The feedback included the following:</p> <ol style="list-style-type: none"> 1. No changes to the Area C requirement were needed with the new proposed K-12 mathematics framework; and, 2. Concerns were raised regarding the new math pathway, which would have included more data science. Specifically, that there would be a potential gap in the academic preparation of students who undertook this pathway and it would have negative impacts on the time to degree once at the UC and careful communication at the high school level on what would constitute a UC admission pathway would be required.

July 2022 - 2023	State Board of Education postponed approval of the proposed K-12 mathematics framework and spent a year revising the framework.	State Board of Education voted in July 2023 to approve an updated math framework without the new integrated math pathway.
July 07, 2023 – <i>BOARS</i> general meeting– Discussion on Area C concerns ²	<ol style="list-style-type: none"> 1. The capacity of data science courses to prepare students for quantitative reasoning requirements at the UC was questioned due to the perceived lack of preparedness of incoming UC students for advance mathematics courses in STEM fields. 2. 44% of high school students do not complete two semesters of Algebra I 3. At least one data science course has been approved since 2016 as an Algebra II replacement for purposes of admission. 	<ol style="list-style-type: none"> 1. Unanimous Vote for data science courses approved in the Statistics or other advanced math category to no longer be considered a replacement for Algebra II for purposes of admission. 2. Urgent word was to be sent to the State Board of Education regarding the decision. 3. Information was to be sent to high school kids and parents regarding the change to Area A-G for purposes of admission. 4. A workgroup was to be established to consider the regulations regarding what courses qualify as advanced mathematics.
July 07, 2023 – After <i>BOARS</i> Decision – Letter to State Board of Education on K-12 proposed mathematics framework ³	<p>The letter sent before the Noon Deadline to the State Board of Education on the newly proposed mathematics framework included a request for clarifying language on the <i>BOARS</i> 2020 policy specifically stating that that:</p> <p>“Advance mathematics” could serve as the required third year of mathematics. Advanced mathematics includes data science among other advance mathematics courses.</p> <p>Specifically <i>BOARS</i> had concerns with the frameworks qualification that all data science courses could replace Algebra II or a qualifying course for basic mathematics.</p>	<p>The State Board of Education accepted the changes as proposed by the UC <i>BOARS</i>.</p> <p>No mention was made either in the letter or to communications provided to the State Board of Education regarding the <i>BOARS</i> decision that data science would no longer be considered an advance mathematics course.</p>
July 11, 2023 – EdSource article ⁴	EdSource reports an email was sent from the Director of Admissions for the UC system,	UC Office of the President offered no comment regarding the vote, but emphasized

² https://senate.universityofcalifornia.edu/_files/committees/boars/boars-july-7-2023-minutes.pdf

³ <https://edsources.org/wp-content/uploads/2023/07/Math-Framework-Final-BOARS-let-070723.pdf>

⁴ <https://edsources.org/2023/uc-committee-changes-admission-standard-for-data-science-causing-confusion-over-math-framework/693892>

	<p>Han Mi Yoon-Wu to all admission officers within the system that:</p> <p>“UC BOARS has just voted to disallow “data science” advanced math courses to validate Alg I and Alg II”</p>	<p>the creation of a workgroup to examine the use of data science for Area C fulfillment.</p>
July 12, 2023	<p>State Board of Education votes to adopt the 2023 Mathematics Framework for California Public Schools.</p>	<p>County offices of education and local school districts have begun implementation, and statewide instructional materials are being prepared for adoption in 2025.</p>
<p>July 17, 2023 –</p> <p><i>BOARS</i> general meeting –</p> <p>Area C Concerns⁵</p>	<p>Meeting was to discuss the following:</p> <ol style="list-style-type: none"> 1. How to implement the July 07 resolution; 2. How to incorporate Algebra II as a prerequisite and to clarify the criteria for approving alternative courses; and, 3. How to provide high schools time to implement the changes. 	<p>It was determined a review of course content of approved Area C math courses was required since the High School Articulation Unit had misinterpreted/misapplied the advance math standard for years.</p> <p>Of the 250,000 applicants to the UC in 2022, 400 listed a data science or statistics course without having listed an Algebra II course.</p> <p>The UC BOARS clarified their decision on 7/7/23 to state as follows:</p> <ol style="list-style-type: none"> 1. Data science courses are no longer qualify as a substitute for Algebra II unless the course has a prerequisite of Algebra II; and, 2. Students who took data science courses in 2022-2024 are exempt from the change.
Fall 2023	<p>UC BOARS convenes an Area C workgroup as voted on in July 2023.</p>	
<p>November 15, 2023 –</p> <p><i>UC Regents committee on Academic and Student Affairs meeting</i></p>	<p>UC Regents Academic and Student Affairs Committee hears a discussion item on the recent BOARS decision:</p> <ol style="list-style-type: none"> 1. Data science courses could no longer be substituted for a lower-level math course; unless they include prerequisite mastery of advanced algebra content; 2. Creation of a workgroup to examine Area C mathematics. 	<p>UC Regent Meeting Minutes –</p> <ul style="list-style-type: none"> • The Chair of BOARS expressed to the Regents that data science options could fulfill admission requirements as long as they met certain standards. The Chair of BOARS affirmed this to be true.

⁵ https://senate.universityofcalifornia.edu/_files/committees/boars/boars-july-17-2023-minutes.pdf

		<ul style="list-style-type: none"> • A Regent asked if various stakeholders would be consulted including the K-12 system and other segments. The Chair of BOARS affirmed that the CSU faculty would join the BOARS workgroup in January 2024. No mention of K-12.
<p>February 21, 2024 –</p> <p><i>BOARS Workgroup on Mathematics Preparation Report #1⁶</i></p>	<p>The purpose of the first report was to determine the type of math courses that constitute an “advance math” course for UC admission.</p> <p>The Workgroup concluded the following:</p> <ol style="list-style-type: none"> 1. The basic math requirements remain as follows: Algebra I – Geometry – Algebra II or Math I-II-III; 2. There are two types of “advanced math” courses: <ol style="list-style-type: none"> a. Calculus pathway – Trigonometry – Pre-calculus-Calculus; and, b. Statistics pathway – those course that do not build upon the “basic math” course content. 3. After examining the three most common data science courses; it was determined the courses were not sufficient in qualifying as a replacement for Algebra II. 	<p>The contents of the report were approved by BOARS.</p>
<p>March 20, 2024</p> <p><i>UC Regents committee on Academic and Student Affairs meeting</i></p>	<p>The Committee received an update BOARS on the first report published by the Area C workgroup.</p> <ul style="list-style-type: none"> • The workgroup collaborated with the Director of A-G and Transfer Policy and with the Undergraduate Admissions on details of the implementations. • The workgroup found the three most commonly used data science course do not qualify as a substitute for Algebra II nor would the courses qualify as an advanced mathematics course. 	<p>Questions raised by the Regents regarding BOARS decision that remained unanswered:</p> <ol style="list-style-type: none"> 1. What evidence was used by BOARS to determine that students are underprepared for mathematics when only 670 UC applicants have taken statistics or data science as their highest level of mathematics without completing Algebra 2 or Math III? 2. How did the University come to the decision that data science courses are no longer a “good” substitute for Algebra 2?

⁶ https://senate.universityofcalifornia.edu/_files/committees/boars/documents/boarsacwphase1report-20240221.pdf

	<ul style="list-style-type: none"> • BOARs is examining statistics as also not qualifying as a valid replacement course for Algebra II. • An announcement with a summary of the report, preliminary guidance, and a timeline for implementation was sent to 35,000 high school educators, the CSU, the State Board of Education, and ICAS subcommittee on mathematics competency. • The validation rules for courses in statistics and data science would change in 2025–26, which would give schools adequate time to review and revise courses. 	<p>3. How can data science courses improve in order to be seen as substitutes for Algebra 2?</p> <p>Concerns were raised by the UC Student Association representative that the change in the A-G requirements could lead to less diversity and could disparately impact thousands of students seeking a UC education.</p>
<p>June 21, 2024 – <i>BOARS Workgroup on Mathematics Preparation Report #2⁷</i></p>	<p>The Workgroup in the second report was tasked with determining what math coursework adequately prepares students for the UC, whether the regulations on math preparation should be changed, and engaging with the CSU and ICAS to align math preparation across all higher education segments.</p>	<p>The new policy guidance to go into effect beginning in the 2025-2026 school year is as follows:</p> <ol style="list-style-type: none"> 1. Three course sequence for basic math is required for entrance to the CSU and the UC: Alg I – Geometry – Alg II or Math I-II-III; 2. For the fourth year recommended “advance math” – there are three new sequences students can undertake depending on their desired college major: <ol style="list-style-type: none"> a. STEM – Courses that require the “basic math” as a prerequisite [Pre-Calculus or Calculus] b. Social Sciences – Courses that build upon a students’ prior mathematical understanding [AP Statistics] c. Humanities - Quantitative reasoning courses that do not require knowledge of basic math [Data Science]

⁷ https://senate.universityofcalifornia.edu/_files/committees/boars/documents/acw-stage2-report-20240617.pdf

		<p>3. Only courses from the STEM pathway will validate a basic math requirement.</p> <p>Examples of a Data Science course that could be seen as an appropriate “advance math” course provided by the workgroup</p> <p>A workgroup should be put together of UC Academic Senate Faculty to conduct a deeper investigation into how mathematics education at the high school level can be improved to increase the ability of students to solve abstract mathematical problems and gain an understanding of concepts needed for calculus and beyond.</p>
<p>July 15, 2024 – <i>State Board of Education submits a letter to the UC Board of Regents regarding the BOARS decisions</i></p>	<p>Linda Darling-Hammond, President of the California State Board of Education submitted a letter to the UC Regents on the BOARS decision asking for answers to the following questions:</p> <p>How will students and schools know which of the many Area C courses qualify as validators of Algebra II / Math 3, recommended fourth-year courses, or eligible but not recommended 4th year courses? What will be the impact on courses such as computer science, financial algebra, discrete math, and other statistics courses?</p> <p>Beyond the three data science courses reviewed, how and when will all the other data science courses previously approved and being offered by California public schools be reviewed?</p> <p>What will be the process for reviewing and publicizing the courses that will qualify for the new category of “recommended” 4th year courses? And how will the UC and CSU systems treat “recommended” courses in the admissions process.</p>	<p>To the knowledge of Committee staff, none of these questions have been answered.</p>

	<p>Will “recommended” courses be weighed differently in admission?</p>	
<p>July 17, 2024 – <i>UC Regents –</i> Academic and Student Affairs Committee</p>	<p>Received an update from BOARS on the Workgroups recommendations and the final report.</p>	<p>Questions posed by the UC Regents that were left unanswered:</p> <ol style="list-style-type: none"> 1. What problem is BOARS trying to solve if the majority of applicants are already taking Algebra II? 2. What has been communicated to the K-12 schools and the State Board of Education? 3. What courses will be considered “recommended” vs. “required” for admission to the University of California? <p>The questions posed by the “State Board of Education” letter were not answered and the Regents requested a private briefing on the content of the letter.</p>

4) *Additional background information –*

- a) [The Chronicle of Higher Education](#) – “Did the University of California Try to Bury a Consequential Vote on Math?” by Stephanie M. Lee. December 19, 2023.
- b) [EdSource](#) – “UC committee changes admission standard for data science, causing confusion over Math Framework.” by John Fensterwald and Michael Burke. July 11, 2023.
- c) [EdSource](#) – “Advanced algebra, data science, and more: UC rethinks contested issues of high school math.” by John Fensterwald. December 8, 2023.
- d) [Los Angeles Times](#) – “UC stirs furious debate over what high school math skills are needed to succeed in college.” by Teresa Watanabe. March 19, 2024.
- e) [Letter sent to the UC Regents by State Board of Education](#) on the Area C workgroup reports.