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College-Ready in the California State University System

Campus Experiences Implementing EO 1110

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Executive Summary

In 2017, the California State University (CSU) Chancellor's Office issued Executive Order (EO) 1110, eliminating non-credit-bearing developmental courses in written communication and math/quantitative reasoning and requiring campuses to provide new types of course models to help students succeed in entry-level college courses. EO 1110 also eliminated the use of the English Placement Test (EPT) and Entry-Level Mathematics (ELM) exam. These were replaced by use of "multiple measures," a combination of high school grades and test scores, to determine students' placement in courses upon entry to the university. Similar to other efforts across the country and in California community colleges, these changes are intended to acknowledge that students admitted to the CSU system are all college-ready, and to help more students move through the system successfully. These changes mark an extraordinary policy shift for the largest four-year college system in the country, and the bold policy has major implications for change on the 23 CSU campuses.

This report, focusing on campus experiences implementing EO 1110, is the first in a multiyear series of implementation studies undertaken by WestEd to help the CSU system understand how campuses are approaching these changes and to gauge the policy's impact on student progress. Findings are based on interviews and focus groups conducted between October 2018 and February 2019 at nine of the CSU campuses, as well as a review of relevant course catalog offerings at all 23 campuses. It is too early to understand the full impact of the policy or to determine which curricular changes on the campuses are most effective and why. This report presents a snapshot of the campus implementation from the perspective of those on the ground working to make changes in response to the new policy.

According to the interviewees and focus group participants, all of the campuses have made significant progress in a short period of time; however, "one size doesn't fit all" in terms of implementation approaches. Significant variation exists across the CSU campuses that were studied for this report — in terms of the demographics of their student bodies, the available instructor pool, and the number and types of departments that offer quantitative reasoning (QR) and written communication (WC) courses, factors that affect their choices for how best to redesign curricula. Campuses also exhibit distinctive approaches to supporting students with study skills, engagement, self-advocacy, and other factors that impact success in the first year. Campuses vary in the ways they are leveraging existing efforts to advance student success.

Course redesign strategies generally fall into two categories: (1) single-semester (or quarter) courses with additional supports attached (including corequisites, supplemental instruction, and/or optional labs and workshops) and/or (2) multiterm sequences that use either a stretch model (spending more time on

material by stretching a one-semester course over two semesters) or a prerequisite model. Key findings concerning campus course redesign approaches include the following:

- Corequisite models are in use across both QR and WC courses, with variations in the degree and type of articulation between parent and support courses.
- Stretch models are well-established in the WC curriculum and are being developed in the QR curriculum, particularly for STEM and statistics pathways; most faculty reported that these models function best when they maintain the same instructor and student cohort across semesters.
- Campuses are experimenting with different QR curricular pathways to better meet the needs of all students.
- Campuses are utilizing optional supplemental instruction, face-to-face tutoring, and/or online tutorials to support student success.
- Active-learning pedagogies are being incorporated into the curriculum in QR.
- Campuses are engaged in an iterative process of implementing curricular redesigns and expect to continue to make changes in the coming semesters.

Campus administrators reported relying heavily on part-time lecturer faculty to teach redesigned entry-level WC and QR courses and identified a need for professional development to ensure consistency in course delivery across multiple instructors. Course coordinators are often taking an informal role in organizing QR professional development, whereas WC courses tended to have more structured professional development, frequently organized through a writing center or by a director of composition studies. Some campuses that use student instructors and tutors have developed robust training models. However, across the board, faculty and administrators said that funding for ongoing professional development is limited and that there are insufficient structures to implement effective practices in their respective disciplines.

Campus staff and faculty who were interviewed for this report generally expressed agreement with the elimination of the EPT and ELM. However, they identified some challenges with implementing multiple measures, most consistently pointing to the lack of the timely availability of high school transcripts to determine final student placement. Many campuses also reported success using Directed Self-Placement, particularly for WC, although some expressed concerns that multiple measures may lessen the impact of this approach. The new placement efforts have required strengthened collaboration structures across Academic Affairs and Student Affairs, a collateral benefit of EO 1110 implementation.

Campus interviewees also provided their perspectives on the implementation process:

- Interviewees identified the one-year timeline as their greatest implementation challenge.
- Campus constituents indicated being largely in agreement with the overall goal of ending developmental education, crediting the Chancellor's Office with accelerating the conditions for important, student-centered curriculum reforms to take place.
- Campus stakeholders said they want to be engaged early in the development of initiatives to build on local expertise and context.

- Interviewees requested sustainable, ongoing support that is tailored to local needs.
- Stakeholders said they would appreciate more coordination at the Chancellor's Office regarding the rollout of related student success initiatives to help them with integrated planning.

The findings from nine CSU campuses suggest that overall the campuses are positively engaged in curriculum redesign efforts to comply with EO 1110. The report's findings indicate that to maximize success with the continued implementation of EO 1110, both campus leadership and the Chancellor's Office should direct future efforts and supports in the following ways:

- support data-driven, iterative curriculum redesign to assess the efficacy of curricular reforms and consider improvements to further support student success;
- support local professional development efforts aimed at ensuring consistency in the quality of instruction;
- provide more flexibility for campuses to implement multiple measures placement and provide effective communication and training to those tasked with implementing the new placement measures; and
- build capacity for effective enrollment management, including scheduling and lecturer faculty hiring.

In addition, lessons learned from the implementation of EO 1110 can help inform the rollout of other potential student success initiatives in the following ways:

- identify strategies for creating a sense of urgency while also providing support for campuses to engage in an evidence-based, iterative process of design;
- provide early and ongoing communication and supports that are tailored to campus needs;
- support campuses to build capacity for cross-functional collaboration and integrated planning; and
- look for opportunities to better integrate and coordinate related Chancellor's Office initiatives.

Future reports in this series will address the implementation of changes to Early Start, an analysis of student progress through the different types of supported WC and QR courses, and a validity study of the new multiple measures placement process. Additional reports will be released by WestEd over the next several years.

I. Introduction

This report is the first in a series examining how campuses in the California State University (CSU) system are implementing Executive Order 1110 (EO 1110). A major policy adopted by the CSU Chancellor's Office in August 2017, EO 1110 requires CSU campuses to eliminate non-credit-bearing developmental courses in written communication (WC) and math/quantitative reasoning (QR), change how students are placed into WC and QR courses, and improve how students are supported to succeed in these areas (see Executive Order 1110 sidebar). Central to the changes required by EO 1110 is the requirement that campuses provide "supportive course models" within "college-level, baccalaureate credit-bearing courses" (rather than developmental courses) to help students meet their WC and QR General Education requirements in their first academic year.[1]

WestEd is undertaking a multiyear series of implementation studies intended to inform the CSU system about the implementation of EO 1110. The studies aim to illustrate the variation of the models and instructional approaches adopted by campuses in response to this major policy change. Over time, these studies will help describe and analyze how students progress under varying course models. The lessons learned from these studies are intended to serve as resources for planning, redesign, and long-term data collection in subsequent years.

To develop this first report in the series, WestEd researchers visited nine of CSU's 23 campuses and interviewed faculty, staff, and administrators there between October 2018 and February 2019. The campuses represent a range of institutions across the system in terms of size as well as geographic

[1] See https://www.calstate.edu/eo/EO-1110.html for the full text of Executive Order 1110. For additional information on the breadth of CSU's General Education requirements, see http://www.calstate.edu/app/genedbreadth/.

location. The report draws from those campus visits and interviews in order to highlight practices across different CSU campuses and academic departments. While it is too early to understand the full impact of the policy or to determine which curricular changes on the campuses are most effective and why, the report presents a snapshot of experiences implementing the executive order, from the perspective of those on the ground who are working to make changes in response to the new policy.

Executive Order 1110

In August 2017, the California State University (CSU) Office of the Chancellor, through Executive Order 1110 (EO 1110), introduced major policy changes that are intended to improve student success. Under this new policy, CSU campuses were required, by the fall of 2018, to:

- eliminate their non-credit-bearing developmental courses in written communication (WC) and math/quantitative reasoning (QR);
- develop or revise entry-level WC and QR courses that provide additional supports to help students succeed;
- Eliminate the use of placement exams for placing students into entry-level courses and move instead to using a series of "multiple measures" for placement; and
- revise their summer Early Start offerings (courses for students who have been admitted to the CSU system but have not yet demonstrated WC and/or QR proficiency) as of the summer of 2019 to ensure that students required to enroll in Early Start could obtain baccalaureate credit through the course offerings.

The report begins with an overview of the study and the variations in campus context observed among the nine campuses visited for this study. Separate sections then highlight the findings from the campus visits and interviews regarding the implementation progress related to course redesign, professional development, and course placement. The report concludes with a discussion of feedback on the implementation of the Executive Order, and of the significant implementation challenges and implications for the work moving forward.

II. Overview and Campus Context

Key Takeaways:

- "One size doesn't fit all" in terms of how campuses are implementing Executive Order 1110.
- There is significant variation across CSU campuses in the demographics of their student bodies, in the available instructor pool, and in the number and type of departments that offer QR and WC courses, all factors that affect their choices for how best to redesign curricula.
- Campuses and disciplines within campuses are at various stages of redesigning their curricula, and some efforts need more time to come to maturity.
- Campuses exhibit distinctive approaches to supporting student success and vary in the ways they are leveraging existing student success efforts.
- Campuses have a deep understanding of their unique needs, assets, and constraints, and they are considering these factors as they navigate how best to comply with Executive Order 1110.

The California State University (CSU) system is the largest four-year university system in the country, enrolling approximately 430,000 undergraduates. The system serves a diverse student body. Half of the undergraduates are students of color, a third are the first in their family to attend college, and almost half are Pell Grant recipients.[2] The system has focused for the last decade on improving the graduation rates for this diverse student body through two different systemwide graduation initiatives. Through its Graduation Initiative 2025, the system is focused not only on improving graduation rates overall but also on reducing the gap between the graduation rates of traditionally underrepresented students and their peers, and on reducing time to degree for all groups. EO 1110 is part of the system's larger strategy to help more students achieve success.

The policy changes in EO 1110 draw upon research showing that many students who begin their college careers in non-credit developmental courses never move on to enroll in general education courses or

[2] For more information, see https://www2.calstate.edu/csu-system/about-the-csu/facts-about-the-csu/Pages/students.aspx.

complete their degrees, and that many students who are placed into these courses could be successful without them (Burdman, 2017; Rutschow & Mayer, 2018).[3] Nationally, several state legislatures have responded to this research by enacting policies aimed at considering the use of multiple measures for placement, which would reduce the number of students placed into developmental courses and provide alternative, innovative credit-bearing courses that offer additional academic supports (Scott-Clayton, 2018). In 2017 for example, the California legislature passed AB 705, legislation that requires the state's community colleges to minimize placement into developmental courses. EO 1110 calls for similar changes in the California State University System.

Between October 2018 and February 2019, WestEd researchers visited nine CSU campuses to better understand how campuses were approaching the implementation of Executive Order 1110 (EO 1110) and what successes and challenges they have encountered to date.[4] (See Appendix A for more details on the methodology used to develop this report.) Though not intended to be comprehensive, the examples of progress and perspectives of challenges from these nine campuses illustrate a range of approaches and viewpoints from a cross-section of CSU campuses.

Campuses Visited for This Report

- California State University, Bakersfield
- California State University, Dominguez Hills
- California State University, Fresno
- Humboldt State University
- California State University, Long Beach
- California State University, Northridge
- California State University, Sacramento
- California State University, San Bernardino
- San Francisco State University

Given the variation across the nine campuses that are the focus of this study and among the 23 campuses as a whole, the WestEd research team began with the premise that one size does not fit all. The following paragraphs describe some of the variation in context across the different campuses to convey some of the needs, assets, and constraints that each campus must consider in figuring out an implementation approach that will work within its context.

[3] The CSU system references a variety of state and national research studies indicating the lower graduation rates for students beginning in developmental education as well as the potential for success for enrolling students directly into baccalaureate-level courses with support. For more information, see https://www2.calstate.edu/csu-system/why-the-csu-matters/graduation-initiative-2025/academic-preparation/Pages/resources.aspx.

[4] While Early Start was not the focus of this research, the research team did hear from campuses about their planned approaches for Early Start in summer 2019 and their associated concerns and challenges. Additional research on Early Start implementation is planned as a part of WestEd's larger research study, and Early Start will be addressed in a future report in this series.

Student body characteristics and enrollment trends vary across the California State University system.

The nine CSU campuses differ in size (ranging from just over 8,000 to almost 40,000 undergraduates) and geographic location, and there are other significant differences in student demographics as well. On one end of the spectrum, Bakersfield and Dominguez Hills are both experiencing enrollment growth and serve a predominantly local population, which means they have an opportunity to build strong relationships with local feeder high schools. Bakersfield receives 70–80 percent of its students from the Kern High School District, with which it has a very strong relationship. Dominguez Hills draws primarily from the Los Angeles basin and serves a primarily low-income, first-generation student body. By contrast, just 15 percent of Humboldt's student body is local to the region, and its campus serves a population that increasingly is from urban areas in the Los Angeles basin and San Francisco Bay Area. This changing demographic has led to challenges in student retention and enrollment decline as the campus strives to meet the needs of its student body. Although Long Beach has a smaller percentage of students requiring supports than the other campuses that are the focus of this study, its combination of enrollment growth and size creates other implementation challenges.

The availability and type of qualified instructors vary across the system.

The campuses in this study rely heavily on lecturer faculty to teach entry-level courses in both written communication (WC) and math/quantitative reasoning (QR), and almost all of the campuses expressed at least some concern about the stability of their lecturer pools. However, there also is noteworthy variation in the depth of instructor pools and in campuses' approaches to staffing courses. Rural campuses typically have a smaller pool of instructors to draw on than urban campuses. Bakersfield relies heavily on local high school teachers, which presents constraints in scheduling instructors after high school hours and having enough instructors who meet minimum qualifications for teaching baccalaureate-level courses. Several campuses reported using at least some tenure-track faculty in the redesigned courses. The availability and use of graduate student instructors also varies significantly by campus, depending on the types of graduate programs they offer. San Francisco, in particular, views these teaching opportunities as crucial to its mission of training future faculty, who will go on to teach at that campus as well as in the community college system or other four-year institutions.

Departments involved in designing and delivering the entry-level courses vary by campus.

At all nine of the campuses in this study, the English and Math departments played a major role in designing and delivering the WC and QR curriculum, respectively. However, at many campuses, other departments also have a significant role in delivering the curriculum. Long Beach and Northridge offer entry-level writing courses through English as well as Ethnic Studies Departments. At San Francisco,

entry-level math courses are offered through multiple departments, including philosophy, computer science, and psychology. This variation enables curricular pathways that support students' educational aims. At the same time, curriculum redesign coordination is more difficult at campuses where course offerings span multiple departments, as compared with those campuses where curricular changes are primarily managed by a single department. Some campuses reported that EO 1110 catalyzed the creation of new committee structures to bring together faculty across departments to discuss curricular alignment.

Curriculum redesign efforts already underway or completed vary by campus.

There is variation across the nine campuses in terms of the extent to which EO 1110 has built on previous or existing curriculum redesign efforts. Seven of the campuses had already eliminated pre-baccalaureate courses in WC and/or had what are known as "stretch courses" in place prior to EO 1110.[5] In particular, Fresno and San Francisco each had more than a decade of experience with eliminating non-credit WC courses, and other campuses reported viewing those two campuses as models when planning their own approach. While fewer campuses reported that curriculum redesign efforts had already been underway for QR courses, there were some nascent faculty-driven efforts that helped pave the way for EO 1110 implementation and then were further shaped by the new policy. In the spring of 2018, for example, Northridge began offering a baccalaureate-level course, aimed at preparing students for the General Education statistics course, as an alternative to the developmental course. Campus representatives also cited concurrent system initiatives or directives that impacted curriculum redesign, and the timing of such efforts appeared to be a factor in how well campuses were able to achieve efficient integration of efforts. For example, Bakersfield, which had already completed its quarter-to-semester conversion, reported that the curriculum redesign work previously undertaken had laid the groundwork for implementing EO 1110. In contrast, San Bernardino, which was in the midst of the quarter-to-semester conversion when EO 1110 was issued, reported that the QR redesign efforts that had been undertaken up to that point had to be significantly altered to comply with the new directive.

Campuses exhibit distinctive approaches to achieving student success.

All of the campuses in the study indicated a commitment to student success and are working on the goals established by the systemwide Graduation Initiative, GI 2025. Within that broad commitment, there are also distinctive approaches that influence each campus's implementation of EO 1110. Dominguez Hills described several efforts to support student success in a student body that is underprepared relative to other campuses. These efforts, which depend on a strong collaboration between academic affairs and student affairs, include creating a holistic on-ramp to college through orientation and Early Start courses and the intentional use of proactive (intrusive) advising and

[5] The Course Redesign section of this report describes "stretch" courses and other support models used by the CSU campuses.

supplemental instruction to support student success. Sacramento has created a student success "czar" position, which reports directly to the president and has been a catalyst for data-driven interventions to support its "finish in four" campaign. The campus has used data on student progression to redirect resources toward hiring new faculty and increasing course enrollments in bottleneck courses, an effort that is intended to boost graduation rates. Campuses also vary in their approach to developing infrastructure for cross-functional collaboration around student success. Part of Long Beach's implementation of EO 1110 involves leveraging the governance structure from its Highly Valued Degree Initiative, a long-term campus effort to boost student success that has received national attention.

III. Course Redesign

Key Takeaways:

- Corequisite models are in use across both QR and WC courses, with variations in the degree and type of articulation between parent and support courses.
- "Stretch" models (spending more time on material by stretching a one-semester course over two semesters) are well-established in the WC curriculum and are being developed in the QR curriculum, particularly for STEM and statistics pathways. Most faculty reported that these models function best when they maintain the same instructor and student cohort across semesters.
- Campuses are experimenting with different curricular pathways to better meet the needs of students in different majors, with particular attention to ensuring preparation of students in STEM pathways.
- Several campuses are utilizing optional supplemental instruction, face-to-face tutoring, and online tutorials to support student success. Faculty reported that encouraging students to access such supports can be difficult.
- QR faculty are incorporating active-learning pedagogies into the curriculum.
- Campuses are engaged in an iterative process of implementing curricular redesigns and expect to continue to make changes in the coming semesters.

Campus teams have employed a combination of strategies to comply with EO 1110's requirements, including development of entirely new courses, redesign of current courses, development of new support structures and strategies, and changes to pedagogical approaches. Course redesign efforts have been focused on how best to provide support for students who are designated as needing additional assistance based on the new multiple measures placement categories.[6] Based on campus visits as well as a review of course catalogs across all 23 CSU campuses, the WestEd research team categorized the range of strategies and approaches that campuses are using to provide additional supports to students in

[6] For additional information on the placement categories and the measures used to place students in each category, see the CSU Chancellor's Office Coded Memorandum ASA-2017-27, https://www.calstate.edu/AcadAff/codedMemos/ASA-2017-27.pdf.

entry-level courses.[7] While there is variation throughout the system, course redesign strategies generally include single-semester (or quarter) courses, with additional supports attached, or multiterm sequences that use either a stretch model or prerequisite model.

Corequisite support models are being utilized for both math/ quantitative reasoning and written communication courses.

Campuses have developed a variety of one- and two-unit corequisite courses designed to provide extra support for students to help them succeed in their General Education courses. The types of corequisite courses offered on the nine campuses fall into three major categories: (1) support courses that serve students in multiple parent courses, covering content and study skills that students in those courses need to be successful; (2) support courses associated with a single parent course but taught by a different instructor; and (3) courses taught by the same instructor as the parent course, effectively embedding the corequisite units within the parent course. Most campuses are in the process of trying to determine the degree and type of articulation between parent and support courses, taking into account students' needs, as well as staffing and scheduling constraints.

Although the corequisite model was more prevalent in the QR curriculum than in the WC curriculum, there are instances across both areas. Some examples include the following:

- At Bakersfield, composition faculty offer a "reading lab" as a corequisite course in conjunction with a two-semester writing course for students (see Bakersfield sidebar).
- At Fresno, the corequisite courses in math are designed to provide support for study skills as well as fundamental math concepts. To address the latter, the corequisites include a day when students work through a series of problems in an online math support course.
- At Humboldt, the corequisite support course is embedded into the parent course, extending

California State University, Bakersfield

In revising their curriculum to respond to EO 1110, Bakersfield faculty identified reading instruction as an important missing piece for students who need additional supports, and so developed a corequisite reading lab. Faculty worked with reading instructors in the Department of Education to draw on their expertise both on the teaching of reading and the development of a diagnostic exam. Students take the exam twice during the term: during the second week of class to give faculty a sense of the students' specific strengths and challenges relative to the course goals and learning outcomes, and again at the end of the term. Faculty will use the results of these assessments to inform further refinements to the course.

[7] See Appendix B for additional description of the course categories and Appendix C for a summary of courses offered at each of the nine campuses in this study. Under the CSU systemwide General Education requirements, WC is identified as the A2 subarea requirement and QR as the B4 subarea requirement.

the number of hours the primary instructor has to deliver the content (see Humboldt sidebar).

Stretch models are well-established in the written communication curriculum.

Since the mid-2000s, CSU campuses have been moving away from providing developmental instruction in English. Seven of the nine campuses in this study had implemented stretch models for their writing courses prior to the implementation of EO 1110. Faculty reported that stretch is widely seen as an effective model for developmental writing, allowing students to practice skills iteratively through writing and revision over an extended time period. In the "true stretch" model, offered by several campuses, the same instructor teaches the same cohort of students for the entire year, covering the content of the traditional one-semester course more slowly and allowing time for cumulative learning. On several campuses, faculty have added additional corequisite support to the stretch courses, either through supplemental instruction or additional reading or writing labs (see Bakersfield sidebar). CSU Northridge offers two versions of the stretch course, one that includes supplemental instruction, and one that does not. Northridge also offers writing courses in seven different departments. Students can opt to take a first semester of the stretch course in one department and then enroll in a second department for their second semester. Two campuses that did not have a stretch model prior to EO 1110 (Bakersfield and Long Beach) were offering a two-semester sequence in which students entered the traditional single-semester WC course after completing a prerequisite in the first semester. Bakersfield's sequence keeps students together with the same instructor across both semesters.

Humboldt State University

As part of the EO 1110 redesign, Humboldt faculty decided to rethink a pilot corequisite model that they had tested during the 2017/18 academic year, whereby students in need of developmental education took a separate non-credit-bearing corequisite course alongside the General Education course. The pilot corequisite was designed to support three different parent courses, and each section of the corequisite could include students from any or all of those courses. Faculty received feedback that students did not understand how the corequisite and parent courses were connected, so faculty made changes to the model this year. The campus has now moved to using an embedded corequisite model in its entry-level math courses. Instructors meet with the same cohort of students five days a week and do not make a distinction between which days/times are for the "regular" versus the "corequisite" course. They use the additional hours to target instruction to areas in which students need more support. Humboldt faculty indicated that they see a benefit in having a single instructor be able to work intensively with the same cohort of students. As one faculty member teaching a supported course noted, the structure allows him to be more flexible, to "turn on a dime" when he sees that there is a concept that needs to be re-introduced or taught in a different way.

Multiterm sequences in math/quantitative reasoning include both stretch and prerequisite models.

For some QR courses, campus faculty have developed a multiterm sequence to provide the support that students need to be successful. San Francisco is offering a two-semester stretch version of its business calculus and precalculus courses. The stretched business calculus course allows for more time to focus on business applications as well as time to review algebra skills and concepts. San Bernardino currently offers one-, two-, and three-quarter versions of its College Algebra and Ideas of Math courses. At Sacramento, faculty took a different approach to the multiterm model when they redesigned two previous developmental courses as first-semester prerequisites to the General Education courses. Where previously there was a lot of overlap in the two developmental courses, the new courses are more targeted based on the students' majors; one of the prerequisites prepares students for the precalculus course, the other for courses that are not calculus-based. Faculty engaged in the redesign met with faculty teaching the second-semester courses (precalculus, statistics, business) to ask what students coming in to the second-semester courses would need to know and be able to do, and then designed the first-semester courses to prepare students for the next course in their intended major. As in the stretch model, students receive baccalaureate credit for this first semester but do not fulfill the General Education requirement until they have completed the second course. Northridge is also offering prerequisite courses, one for students who intend to move into a STEM pathway, and the other for students who would take either statistics or general QR for their General Education requirements.

Curriculum revisions include refined pathways for STEM and non-STEM students.

Campuses placed careful attention on how best to support students in the STEM curricular pathways, where foundational knowledge is critical to success in upper division coursework. Many faculty saw meeting the needs of these students as a more difficult challenge than providing courses that can meet General Education requirements for students in non-STEM fields. Campuses are experimenting with different approaches, including two-semester supported sequences, for students in STEM fields. Several campuses reported placing emphasis both on redesign of their college algebra course to ensure that it is adequately preparing students for the next step, and on determining how best to support students for success in that course. Bakersfield and Sacramento State both offer a two-semester sequence for their STEM

California State University, Long Beach

For STEM students at Long Beach, faculty created a stretch college algebra course that includes corequisite support. The campus uses a corequisite support model for all other math courses but determined that STEM students needed the additional support provided in the stretch model. Students gain General Education credit upon completion of the first course of the sequence, which allows the course to fulfill a dual role: Students who decide after one semester that they no longer want to major in a STEM field can fulfill their General Education requirement after completion of the first term, while students continuing in the college algebra sequence have the support they need to move on to precalculus and beyond. The course model utilizes a large lecture format with a breakout session; supported students receive a second breakout session.

and statistics students and a corequisite support model for humanities/liberal arts students. Fresno State resurrected a college algebra course that has now been redesigned to serve as a prerequisite course (with additional corequisite support) to prepare students for precalculus and beyond.

> *In some ways the college algebra course is the toughest one in terms of timing just because that course needs to get to a certain place because the next course will pick up from that point. It's the course the most resources have been put in to.*
>
> – CSU campus interviewee

With the elimination of the developmental education requirement focused on college-level algebra, students have access to multiple courses and pathways that are meant to be better aligned with the QR needs of their major.

> *A good outcome of [course redesign] is that we've really expanded our view of QR. . . . I think students, a lot of times, are not served well by traditional math if it's going to be three non-credit-bearing classes just to get up to a class that they don't, really, necessarily even need for their major, or in their discipline.*
>
> – CSU campus interviewee

Faculty at several campuses used EO 1110 to jumpstart innovative new QR courses designed to meet the needs of non-STEM students. At Long Beach, plans were already in the works for developing a new QR course, The Power of Mathematics, when EO 1110 was issued. Since the course fit well within the parameters of the new policy, faculty were able to complete the development of the new course, which is intended for non-STEM students. San Francisco State also leveraged EO 1110 to develop a Statistics for Social Justice course that they had long wanted to implement (see sidebar).

San Francisco State University

San Francisco State leveraged EO 1110 to develop a Statistics for Social Justice course that faculty had long wanted to implement. This course, for students in the Metro College Success program, introduces students to statistics through its application for social justice issues. The intent of the course is to provide more relevant real-world examples to the study of statistics. There are two versions of the course, a traditional 3-unit course and a 4-unit course for which additional support for algebraic concepts is embedded in the curriculum. The 4-unit course includes extra time that allows for additional examples and emphasis on the underlying math concepts. Course designers made sure to include the chair of the math department in the approval process to ensure that the course would meet the department's rigorous standards. The courses were piloted for the first time in fall 2018, and faculty interviewees underscored that the course continues to be refined.

Supplemental instruction and tutoring are widely offered.

The majority of campuses visited for this study use some form of supplemental instruction (SI) to provide additional support for students. SI is typically an optional, peer-led study and support session for which students sign up after the semester has begun. Some campuses use SI as the primary corequisite support for students, while others offer SI as additional assistance attached to a stretch course. In addition to offering the supports tied directly to the courses, all campuses offer additional tutoring opportunities for students, often through math labs and writing centers. Campuses are exploring different strategies for encouraging students to take advantage of the optional supports. Some campuses, such as Dominguez Hills, have taken steps to coordinate and improve their tutor training and to reduce the potential stigma associated with seeking tutoring support (see Dominguez Hills sidebar). At Sacramento, SI leaders try to recruit students through in-class presentations about SI as an opportunity to improve their grade.

California State University, Dominguez Hills

At Dominguez Hills, the campus had made some recent changes to increase the collaboration between academic affairs and student affairs in an effort to better support students. Tutoring has become a central part of the campus's strategy. The Toro Tutoring Center, centrally located on campus, provides wraparound support. Faculty hold office hours in the tutoring center to help introduce students to the space, to encourage them to access its resources, and to reduce the stigma of seeking out tutoring assistance. To strengthen the tutoring offerings, the campus places a great deal of emphasis on tutor training, beginning with a Peer Educator Conference at the start of the school year for tutors and SI instructors. This training is done in collaboration with department faculty, student affairs, and the career center.

Some campuses are experimenting with online tutorials.

While most of the additional supports that campuses have added in response to EO 1110 include more face-to-face instruction, campuses are also utilizing online tutorials and activities to provide instructional support for students. At Bakersfield, math faculty use a product called XYZ Instruction which offers online homework as well as videos and tutorials for students who may be struggling with a concept. At Fresno, students in the corequisite courses spend one day per week working in ALEKS, a web-based assessment and learning system, covering modules that faculty have identified as essential for all students to master. Other campuses report using online tutoring portals for students to be able to ask questions and receive support 24 hours per day. While it is too early to know how effective the online supports are, faculty suggested that being able to direct students to these supports has provided another option to help students gain understanding of and practice with difficult concepts.

Active learning pedagogies are being incorporated into the math/quantitative reasoning curriculum.

As they have redesigned curriculum, QR faculty on several campuses have looked to transition courses from a traditional, large lecture model to smaller classes utilizing active learning and problem-solving approaches. Active learning pedagogies typically employ small-group formats and allow students to understand concepts through hands-on applications. As part of San Bernardino's quarter-to-semester conversion process, its math faculty had already adopted such approaches, based on research that tied active learning pedagogies to increased student success. Faculty reported being inspired by examples from San Francisco State and Arizona State, and are now applying active learning and problem-solving pedagogies to the revised entry-level math courses.

> *Before, these were all instructors that were used to teaching the [remedial math courses], which were very skill-based algebra courses. It was just this sequence of skills, and now we're asking them to do more active learning, more conceptual development.*
>
> – CSU campus interviewee

IV. Instructor Hiring and Professional Development

Key Takeaways:

- Campuses rely heavily on part-time lecturer faculty to teach the entry-level WC and QR courses, and instructor pools have varying degrees of stability.
- Campuses have been able to provide some professional development for instructors teaching the new courses, but funding for such efforts is limited.
- QR course coordinators often take on informal organization of professional development.
- Several campuses have more structured professional development for their WC courses.
- Interviewees broadly identified program-wide portfolio assessment as a best practice in composition, but the practice is implemented only on a small number of campuses.
- Some campuses have developed highly structured training for graduate and undergraduate student instructors and tutors.

Part-time lecturer faculty teach the majority of entry-level courses.

The campuses in this study rely heavily on part-time lecturer faculty to teach the entry-level courses in WC and QR. These faculty are typically paid by the course, and many teach at more than one institution, including CSU campuses, community colleges, and/or high schools. To be eligible to teach a baccalaureate-level course at the CSU, lecturer faculty must have at least a master's degree. The shift away from developmental courses has meant some campuses have needed to hire new lecturer faculty qualified to teach at the baccalaureate level. Regardless of whether the lecturer faculty are new or have been teaching on the campus for many years, representatives on the majority of campuses noted that the curricular and pedagogical changes campuses made in response to EO 1110 require ongoing communication with these faculty as well as opportunities for professional learning, particularly at the local, or course, level.

Math/quantitative reasoning course coordinators provide informal professional development support.

Course redesign in QR covers many different courses, often in multiple disciplines. As noted in the discussion of course redesign, courses on individual campuses often vary in content, structure, and pedagogical approach. These variations have meant individual courses often require targeted professional development. On many campuses, QR course coordinators have taken responsibility for developing materials such as instructor handbooks, common syllabi, common exam questions, and so on, to both support current instructors and to maintain consistency in the way the course is offered across sections and over time. Course coordinators also have taken on the role of organizing professional development activities for a given course. Many of these efforts have been informal, including face-to-face brown bag lunches and virtual dropboxes for sharing course activities and exam templates.

> *The most we've ever had was a course coordinator, someone that the faculty can contact when they have trouble. I work with someone over the summer and we created template exams. And I'm constantly emailing back and forth with [lecture faculty]. But that's really the most that we really do. We don't really have anything formal except possibly you might have a meeting at the beginning of the year, but we don't have the kind of training that they do in English.*
>
> – CSU campus interviewee

Some campuses have more formal professional development activities in place for QR faculty, some of which has been supported through EO 1110 funds. San Francisco hosted professional development workshops prior to the start of the semester for new graduate teaching assistants and some lecturer faculty. The workshops included an overview of information on individual courses, a focus on strategies for incorporating active learning, and guidance on how to direct students to access additional support resources such as academic advising and tutoring. Those who have attended these trainings indicated that they found some value in them, particularly as an introduction to the course and to the other people teaching the course, but some interviewees suggested that they still needed more specific ongoing training around course content and pedagogical strategies.

Written communication courses tended to have more structured professional development in place.

On most of the campuses visited for this study, professional development activities for WC courses are coordinated through a first-year writing or composition program. Those campuses with more robust programs have developed professional learning communities for their writing instructors whereby the instructors could meet throughout the semester to plan, exchange ideas, discuss challenges, and provide support. At Northridge, professional development for the writing courses involves extensive coordination across multiple departments (see Northridge sidebar). Several campuses also reported piloting the use of peer observations as part of the professional development for their writing programs (see San Bernardino sidebar).

Interviewees identified program-wide portfolio assessment as a best practice in composition, but the practice has not yet been widely implemented.

While some campuses have systems in place for reviewing assignments and assessing consistency, others do not have the resources or capacity for such efforts. One campus dean noted that the campus was previously able to structure the schedules of lecturer faculty to allow for paid time to spend reading assignments across different sections for norming purposes, but the campus has not had the resources for that kind of support for several years. Faculty engaged in program-wide portfolio assessment in WC courses find value not only in gauging consistency across sections but also for improving their own classroom activities.

California State University, Northridge

Northridge offers three versions (two stretch and one single-semester) of its Approaches to University Writing course across seven different departments (English, Africana Studies, Chicana/o Studies, Asian American Studies, Central American Studies, Queer Studies, and Linguistics). While faculty are free to choose their own themes and readings, the University Writing Council works to create a course structure that is similar across all, including a focus on similar progression topics and similar types of projects. The Writing Council hosts a training for faculty from all departments at the beginning of the semester and works to develop a common language across all departments.

> *At program meetings, we bring in a sampling of a range of assignments, so we will read that and give each other feedback and talk about what's working and not working. It was really helpful to have a discussion about what do we notice that's working well, how can we facilitate different types of responses, how can we work with our own prompts and our own instructions and our own activities. That's not only helpful in terms of getting actual feedback on your work, but just seeing the varieties of things that people work with, you get so many ideas.*
>
> – CSU campus interviewee

Some campuses have developed highly structured training for student instructors and tutors.

Graduate student instructors and undergraduate supplemental instruction leaders are key to the supports for entry-level QR and WC courses provided on many of the campuses, and campuses have put in place structures to provide training and supports for their training. One QR course coordinator noted that this support is extremely important for graduate students who are now leading courses that are using more active learning in which they need to be able to do more thinking on their feet in order to manage the classroom. San Francisco provides professional development to new graduate students both formally through a for-credit pedagogy course and informally through utilization of a shared office space,

online resources, and lead instructor office hours. Professional development for undergraduates on the different campuses includes activities such as peer educator workshops, in-class observations, and specific training on issues such as culturally responsive pedagogy and differentiated instruction.

> *It's the course that all graduate teaching assistants take, and that has been, I think, the best kind of support, not necessarily in terms of time to do our lesson planning, but just in terms of having a teacher that is able to provide some material for us. And also having other people who are in your class who can bounce ideas off of, . . . that's been a great tool, training opportunity.*
>
> – CSU campus interviewee

California State University, San Bernardino

San Bernardino is piloting a newly developed faculty visitation program, coordinated by one of the composition lecturers. Through this professional development effort, anyone teaching composition, whether they are tenure-track or lecture faculty, can request a peer observation by another faculty member. Faculty are encouraged to have a pre-visit meeting to discuss the class content and goals for the day and then have a follow-up meeting after the observation for reflection and feedback. The composition coordinator surveys faculty at the end of the year to get a sense of how valuable the pilot is and how it might be improved.

V. Fall 2018 Placement

Key Takeaways:

- Campus staff generally agree with the elimination of the English Placement Test and Entry-Level Mathematics exam.
- Many campuses report success using Directed Self-Placement, although it is much more common in WC than in QR.
- Implementation of the multiple measures policy has required a coordinated campus effort across academic and student affairs and the formation of new collaborative structures.

One of the major changes instituted by Executive Order 1110 (EO 1110) is the elimination of the use of the English Placement Test (EPT) and Entry-Level Mathematics (ELM) exam to determine placement of students in entry-level courses at the CSU for General Education Subareas in written communication and quantitative reasoning. EO 1110 called instead for the use of "multiple measures," a combination of high school grades and test scores,[8] to determine whether students would enter the university in one of four different placement categories (see California State University Placement Categories sidebar). In addition to revising and developing courses to meet the requirements of EO 1110, campuses have had to develop systems to implement the new multiple measures policy. This systems change has impacted practices and processes across the campuses, from admissions and outreach to academic advising, orientation, and enrollment management.

[8] Placement categories for WC and QR courses are determined by a combination of student grades and test scores. For a detailed description of the various ways in which a student can be placed into the different categories, see http://www.calstate.edu/acadaff/codedmemos/ASA-2017-27.pdf.

California State University Placement Categories, Based on Multiple Measures

Category I: Has fulfilled the General Education Subarea A2 or B4 requirement.

- Student has met the CSU GE Breadth Subarea A2 and/or B4 requirement via Advanced Placement (AP) examination, International Baccalaureate (IB) examination, or transferable course.

Category II: Placement in a General Education Subarea A2 or B4 course.

- Student has met examination standards and/or multiple measures–informed standards.

Category III: Recommend placement in a supported General Education Subarea A2 or B4 course.

- Based on new multiple measures, student needs additional academic support.
- Participation in the Early Start Program is recommended and may be highly advisable for some students, particularly STEM majors.

Category IV: Require placement in a supported General Education Subarea A2 or B4 course or the first term of an applicable stretch course.

- Based on new multiple measures, student needs additional academic support.
- Participation in the Early Start Program is required.

Source: Coded Memorandum ASA-2017-27, November 20, 2017, available from http://www.calstate.edu/acadaff/codedmemos/ASA-2017-27.pdf

Most interviewees agree that the previous placement exams did not serve students well.

There is general agreement among those interviewed that the CSUs needed to move away from ELM and EPT as measures of academic preparedness. While many interviewees had questions about whether the specific multiple measures laid out in EO 1110 were the right placement indicators, very few were advocating for a return to the previously used placement exams.

> *From the community perspective, they like [multiple measures placement]. We've been hearing this from our high schools for a long time. They didn't feel the EPT and ELMs did justice to their students. . . . I mean, we used to get calls every year from counselors. . . . My student has taken four years of math, has passed AP calculus, so how can the student be in remediation?*
>
> – CSU campus interviewee

While campuses have moved to the use of the multiple measures categories to determine initial placement, faculty on several campuses reported that they see a benefit in giving students the opportunity to use additional placement tests to move up in their placement. Several campuses therefore are using ALEKS PPL (an online adaptive assessment tool) and other placement tools to provide some additional information and flexibility for student placement.

California State University, Sacramento

At Sacramento State, faculty are piloting a form of Directed Self-Placement in Mathematics with an instrument called Placement, Learning, and Understanding Mathematics (PLUM). The program is designed to help entering students determine which math or statistics course is right for them. Students are encouraged to complete the PLUM instrument prior to orientation. PLUM includes descriptions of the different QR course offerings as well as a series of activities for students to complete, including a self-inventory of skills and feelings about mathematics and a quantitative reasoning activity (using Knewton) to assess basic mathematics fundamentals. Based on responses, the PLUM program makes recommendations about which course may be the best fit. All first-time freshmen will be required to participate in the PLUM program.

Directed Self-Placement is used on many campuses for writing placement but is less common in mathematics.

A majority of the participating campuses allow students to choose whether to take a one- or two-semester writing course, based on Directed Self-Placement (DSP). Individuals on several campuses report success with the DSP process, both as a placement mechanism and for providing students with the opportunity for agency and reflection. Campuses each design their own homegrown tools, with a common aim to help students engage in self-reflection. Questions about their perceived skill level as writers, their educational goals, and workload and other factors allow them to choose the entry-level writing course that best fits their needs.

> *I think we're invested in Directed Self-Placement because we feel, and our surveys of the students back this up, that it's key for a student to feel like they're in the class that they belong in and not that they have been stuck somewhere that they don't belong. If they start off with an understanding of the cognitive and rhetorical tasks that they need to work on mastering, and why this class is the right place for them, they start off feeling comfortable, confident.*
>
> – CSU campus interviewee

At Fresno State and San Francisco State, two campuses that have had DSP in place for many years, approximately half of the students choose to enroll in the two-semester stretch course. Both campuses report high success rates in both the stretch and single-semester courses.

While faculty on most of the campuses support the use of DSP for writing placement, some campuses have not moved in this direction and are not inclined to do so. Some of the interviewed faculty believe

that the institution is best equipped to make placement decisions, and they were more comfortable using multiple measures for placement than a DSP process.

> *[M]ultiple measures is working beautifully. And there's a lot of pressure on the English side to go to Directed Self-Placement. We will not go there. We do not want to go there. We know what English class they should take to succeed. I know we're just three months into it. But from what I'm seeing, it's the perfect indicator. And it is working.*
>
> – CSU campus interviewee

Although DSP is widely used for writing placement, faculty on most campuses are less convinced about its utility for mathematics placement. Sacramento State, however, is the exception and is piloting a version of self-placement for mathematics this year (see Sacramento sidebar).

California State University, Fresno

Fresno State has hosted several activities focused on communicating with advisors about the changes in math placement and the math curriculum. As part of its ongoing efforts, the University Advising Center has held monthly advisor meetings and invited the math chair and admissions representatives to provide an overview of the changes and details on new course offerings and placement categories. Trainings are hosted on an online platform to ensure that the information is accessible for those unable to attend. In addition, the Advising Center has offered several open forums with the chair of the math department and dean of undergraduate studies for advisors to ask questions and clarify issues specific to their individual colleges. The advising center and mathematics department have jointly developed handouts that advisors can use to guide students into the correct course sequences.

Implementing multiple measures requires coordination across academic affairs and student affairs.

The new multiple measures policy touches constituents across the campus, including admissions staff, registrars, enrollment managers, schedulers, advisors, outreach coordinators, orientation leaders, and faculty. To implement this new policy as smoothly as possible, most of the visited campuses have put in place a campuswide EO 1110 implementation team. The purposes of such teams are to discuss curricular changes, coordinate plans and policies for implementing the new placement categories, and communicate about changes to various groups of stakeholders.

- On one campus, the planning group worked closely with orientation leaders to make sure that there was a coordinated effort around placement for both math and writing to streamline the process for students.
- Several campuses report having regular meetings throughout the year with faculty and advising councils to make sure that advisors are aware of the changes coming about because of EO 1110 (see Fresno sidebar).
- Another campus has a committee working specifically on how to better communicate with students.

> *The other thing that we've been asked to do, the first-year experience committee, we've been asked to put together a proposal for changing how we communicate to first-year students, because right now it's department by department, it's not centralized. We're advocating for the purchase of one of those orientation registration systems where it just puts everybody's information into one module that you go through. Right now a student has to go into multiple websites to figure out what to do.*
>
> – CSU campus interviewee

Part of coordinating the messaging about multiple measures has been a concerted effort to make sure the messaging is positive and student-centered. Rather than focusing specifically on EO1110 and referencing that policy's changes, messaging to students has focused on guiding them to the right courses based on their choice of major. Several campuses are also using various forms of intrusive advising to follow up with students throughout the term to try to ensure success.

VI. Campus Perspectives on the Implementation Process

Key Takeaways:

- Interviewees identified the one-year timeline as the greatest implementation challenge.
- Campus constituents are largely in agreement with the overall goal of eliminating the non-credit courses, crediting the Chancellor's Office for accelerating the conditions for important, student-centered curriculum reforms to take place.
- Campus stakeholders want the Chancellor's Office to engage them early in the development of initiatives to build on local expertise and to communicate with them more clearly and consistently during future rollouts.
- Chancellor's Office resources to support EO 1110 received mixed feedback, with campuses requesting more sustainable, flexible support that is better tailored to local needs.
- Campuses would appreciate more coordination at the Chancellor's Office regarding the rollout of related initiatives to help them with integrated planning.

Interviewees across the campuses provided specific feedback about their perspectives on the implementation of EO 1110 by the Chancellor's Office, citing both benefits and challenges of the office's approach. On the positive side, many agree with the need for discontinuing the non-credit courses and acknowledge that EO 1110 has created both a sense of urgency and some of the conditions needed for curricular change. While they generally support the goal of EO 1110, campus interviewees expressed concerns about specific aspects of the implementation, especially issues related to timeline, communication, and faculty and campus engagement. This section summarizes the most important themes from interviewees across the campuses about the approach for implementing EO 1110. These themes have implications for future change initiatives.

The one-year implementation timeline was cited as a significant challenge.

The aggressive timeline of implementing EO 1110's requirements in just one year was frequently cited as the greatest challenge the campuses face. Interviewees noted that one year did not allow sufficient time for iterative curriculum redesign that builds on experiences in the classroom; for training of instructors in new pedagogical approaches, such as active learning; and for departments to comply with Academic Senate course approval and other processes. Interviewees reported that going forward they will need to continue to engage in iterative redesign based on assessment of the new courses and that ongoing training and professional development will also be needed because the redesigned courses are frequently taught by a rotating set of instructors. Interviewees noted that the implementation is ongoing, so such efforts will require continued investment beyond the resources provided in the first year.

Interviewees are largely in agreement with the goal of eliminating non-credit developmental courses.

Campus interviewees largely agreed with the overall philosophy behind EO 1110 regarding the need for alternatives to non-credit developmental courses. At some campuses, there are pockets of concern about this change, largely centered on doubts that students will be able to perform well without the developmental courses, or concerns that new entry-level courses would not be of sufficient baccalaureate quality. On the whole, however, most of those interviewed expressed agreement with the overall goal of providing additional support to help students move directly into baccalaureate-level courses and to succeed academically. In fact, many campuses had already ended developmental education in WC and others had considered or begun curriculum redesign efforts in both QR and WC prior to EO 1110.

> *Remediation was largely not beneficial to most students. I think it was well intentioned, conceptually, at its outset, not just here, but nationally. However, it certainly created a vortex for students and delayed their aspirations to graduate. So, I appreciate the Chancellor's Office leadership in tackling such a divisive and controversial topic. They took a lot of arrows for doing this. However, at the end of the day, I believe that what we have structured on this campus is going to ultimately be more beneficial to students' progress, than what was in place prior.*
>
> – CSU campus interviewee

> *This idea that our students are not coming here deficient is one that we welcome. The philosophy that our students are ready, and we're happy to have you, and that it's our job to provide you the support that you need — that is very consistent with the values at our campus.*
>
> – CSU campus interviewee

Executive Order 1110 helped create a sense of urgency that catalyzed important cross-departmental curriculum redesign efforts.

Many interviewees acknowledged that the aggressive timeline, while presenting significant challenges, created an urgency that has catalyzed important curriculum redesign efforts. In some cases, EO 1110 has helped create the conditions for rich cross-departmental and/or cross-divisional conversations about curriculum to take place. At many campuses, faculty from different departments with shared responsibility for implementation have engaged in integrated planning efforts as a result of EO 1110. At some campuses, the conversations have included QR and WC faculty jointly, generating rich cross-disciplinary conversations that interviewees described as uncommon. EO 1110 planning teams on some campuses have brought together Student Affairs and Academic Affairs staff to work more collaboratively on, for example, improving supplemental instruction, tutoring, academic support, or advising. Many interviewees cited these as among the greatest benefits of EO 1110.

The Chancellor's Office could have done more to acknowledge local expertise and build on successes already underway on the campuses.

Interviewees at the majority of campuses observed that the rollout of EO 1110 was too top-down, providing insufficient opportunities for faculty input. Some perceived a missed opportunity to tap the disciplinary expertise of CSU faculty who were already engaged with the cutting edge of pedagogical practice around eliminating non-credit-bearing courses in their fields. Interviewees indicated that the Chancellor's Office could have done more to acknowledge and build on the successes that were already underway on many campuses to achieve the same goal. Some administrators noted that the perception of the lack of sufficient faculty engagement and consultation has had the unintended result of galvanizing resistance, even among those who were generally in philosophical agreement with the aims of EO 1110, which has made implementation efforts on the campuses more difficult.

> *We'd really like to see more people from the Chancellor's Office spend time on campuses when they are in the emerging stages of thinking about why we need to transition and what they're designing to help drive where we're going. That's shared governance faculty consultation, but it's also being more aware of how the campus functions.*
>
> – CSU campus interviewee

Campus interviewees want clearer, more transparent, evidence-based communication.

In addition to describing Chancellor's Office communication as being top-down, interviewees indicated that the office's communication has often lacked clarity and transparency. Campus stakeholders observed that directives, such as answers to frequently asked questions (a FAQ document),[9] are often difficult to understand. Moreover, they have not always received clear answers to questions directed to the Chancellor's Office, or questions have sometimes been answered differently by different people or departments. They also reported that changing requirements and shifting definitions of multiple measures categories complicated campus implementation efforts as well as communications with students, parents, and feeder high schools in the first year. Such complications have added to the difficulty of rolling out EO 1110. Several interviewees observed that the research and evidence base for EO 1110 and the multiple measures categories were not well-communicated to the campuses. They indicated they would have appreciated the opportunity to engage more directly with the data on which the proposed strategies were based.

> *Communication needs to be consistent and clear: The communication to our public from the Chancellor's Office, it has to begin with us. We have to be included in those conversations so we don't start contradicting ourselves as a system. . . . There's just been not enough clear, open lines of communication in that area.*
>
> – CSU campus interviewee

Campus interviewees offered mixed feedback about the resources provided by the Chancellor's Office to support change.

The Chancellor's Office has provided dedicated resources to support campus implementation efforts. In 2017–18 and 2018–19, the CSU received $75 million for each academic year to support Graduation Initiative 2025. These funds in support of GI 2025 are reoccurring. The Office of the Chancellor allocated an additional $14.72 million of one-time funds to campuses during this time frame to further support student success, including $6.67 million for the specific implementation of EO 1110. Campuses had relative flexibility in how funds were allocated across programs and departments; course redesign was a focus of the use of the EO 1110 funds in 2017–18. The Chancellor's Office also provided opportunities for campus teams to attend systemwide professional development convenings. While some interviewees expressed appreciation for these resources and have found them helpful, others indicated that the usefulness of these resources for the campuses could have been improved.

Regarding the monetary grants, the most frequent feedback concerned the difficulty of sustaining curriculum redesign efforts with one-time monies; campuses pointed to ongoing needs including hiring instructors, professional development, assessment, and iterative redesign. Some also noted that the process for applying for funding has been challenging. One campus interviewee reported that the

[9] The Chancellor's Office has periodically updated a FAQ to provide additional input on EO 1110. Updates are available at https://www2.calstate.edu/csu-system/why-the-csu-matters/graduation-initiative-2025/files/academic-preparation-faq.pdf.

funds came with stipulations to attend specific Chancellor's Office trainings, which made recruiting faculty participants difficult, and that more latitude in how to direct the funds would have allowed campus discretion to take its local needs into account. Another campus interviewee noted that there was insufficient lead time to engage in meaningful proposal development. The short timeline has put campuses in the position of being reactive instead of strategic in their efforts.

> *The Chancellor's Office talks to the provost, and the provost talks to the dean, and the dean then talks to the chair, and by the time the request for proposal gets to you, a month has gone by. It doesn't allow you to think strategically. Because you're always just being reactive and trying to come up with something you can do immediately, on the fly, with this money that you may not have for more than a year. And that's not the best way to build something.*
>
> – CSU campus interviewee

Chancellor's Office convenings have had some value for cross-campus exchange, but overall have fallen short of meeting campuses' diverse needs for professional development support. Interviewees indicated that the utility of the systemwide meetings has been greatest when the meetings provide an opportunity for CSU campuses to compare notes with each other directly on strategies for approaching redesign and managing challenges. Presentations by the Chancellor's Office or invited guests are viewed as less useful, especially when the presentations have advocated for one solution (such as math corequisites) rather than providing a comparative approach. In general, interviewees reported that the convenings have been aimed more at math than writing instruction. Several interviewees believed that providing funding for faculty to attend relevant disciplinary conferences on similar topics or for local professional development opportunities would have provided more value than the content provided by the Chancellor's Office. Campus interviewees also expressed mixed feedback on the value of the opportunity to attend convenings as part of a campus team. Some found it a useful way to support dedicated time for campus dialogue; at least one interviewee reported having had ample time for dialogue on campus and did not need a convening for this purpose.

> *[Chancellor's Office staff] started off the convening by saying, "We've called you together because we know you don't get a chance to meet on campus." Our campus had two task forces going. We're in gen ed together. We talk all the time. So, I won't go to another one of those. And it's not their fault. They're trying to meet everybody's needs there. So, maybe people at some campuses don't talk. We do. So, we don't need that.*
>
> – CSU campus interviewee

Campuses cited the challenges posed by concurrent implementation of multiple Chancellor's Office initiatives.

A number of campuses cited the challenge posed by multiple initiatives being rolled out at the same time, including GI 2025, EO 1100, EO 1110, and quarter-to-semester conversion. It seemed to some that different parts of the Chancellor's Office have been keeping track of different initiatives, but it was unclear who was coordinating the collective impact of these various initiatives on the campuses. In some cases, campuses have been able to effectively leverage efforts from one implementation effort to another, utilizing existing governance structures and relationships that have developed to build on and extend prior successes. However, in other cases, campus stakeholders cited instances in which recent curricular changes, made either as part of a quarter-to-semester conversion or as revisions to Early Start offerings, did not conform with EO 1110, creating additional work. Some stakeholders also said the cumulative effect of multiple reforms contributed to what they described as initiative fatigue.

> *On one hand, we're doing all of this transformation, but on the other hand it's like, "Oh, no. Here comes another executive order."*
>
> – CSU campus interviewee

VII. Challenges and Implications

The findings from nine CSU campuses suggest that overall the campuses are positively engaged in curriculum redesign efforts to comply with EO 1110 in ways that build on a student-centered approach and on a nuanced understanding of their local campus contexts. Those working hard to continue these efforts can benefit from guidance and support that enable them to achieve systemwide goals while taking into account their unique needs, assets, and constraints. The specific findings outlined in this report have implications for two areas in particular: (1) how campus leadership and the Chancellor's Office can continue to support EO 1110 implementation efforts going forward, and (2) how the Chancellor's Office can approach the rollout of future initiatives focused on student success. These two kinds of implications are discussed further in the following sections.

Implications for Executive Order 1110 Implementation

As of early 2019, with just one full semester of EO 1110 implementation efforts completed, campus efforts are still in the early stages. Nevertheless, all of the campuses studied for this report indicated significant progress in their efforts. They also identified specific challenges that they are confronting, which point to opportunities for how campus leadership can support continued efforts to build on early momentum, and how the Chancellor's Office can direct future guidelines, resources, and supports in the most effective ways possible. Interviewees identified four major areas that present opportunities for the campuses and/or the Chancellor's Office to direct efforts to ensure that EO 1110 will be successful:

- supporting data-driven, iterative curriculum redesign to improve student success;
- supporting local professional development efforts aimed at ensuring consistency in instruction;
- providing more flexibility for campuses to implement multiple measures placement and ensuring broad communication to key constituencies; and
- building capacity for effective enrollment management.

Supporting data-driven, iterative curriculum redesign to improve student success

While campuses made significant changes to their curriculum for the 2018/19 year, most expect that additional changes will be necessary as they assess the efficacy of curricular reform and consider iterative improvements to further support student success. Interviewees were convinced of the importance of using data to assess the effectiveness of curricular changes, and they shared many ideas on the short- and long-term analyses of EO 1110 changes that they think are necessary. However, most campuses identified a lack of funding and structural capacity to carry out the more rigorous data analysis strategies.

In some cases, nascent efforts are underway to conduct course-level assessment. However, these efforts are constrained by insufficient funding. Many interviewees observed challenges with implementing portfolio assessment of WC courses because their campuses are unable to compensate lecturer faculty for the additional time required to do so. Similar challenges exist in QR courses, where analyzing evidence from common exam questions, for example, would require dedicated time by college personnel.

Campus interviewees also identified the need to understand how student performance in redesigned General Education courses predicts long-term success. Faculty on the majority of campuses visited for this report noted that, while student learning and pass rates for entry-level courses are important, what is ultimately most important is understanding student success in the long run. Interviewees indicated that they would like to know how students who have taken stretch courses do in future writing-intensive courses or in upper division writing requirements, in comparison to students who have taken single-semester composition courses. Similarly, faculty are interested in understanding how students who go through different math pathways in the new General Education curriculum succeed in subsequent courses, whether in mathematics or other fields. Interviewees indicated a particular interest in understanding whether redesigned mathematics sequences are adequately equipping students for success in highly demanding STEM fields.

Campus leadership can help support iterative curriculum design by convening cross-functional teams to work on these issues. Interviewees noted that the opportunity to engage in cross-division and cross-departmental conversations through the first year of EO 1110 implementation was a key benefit of the initiative. Encouraging conversations among relevant faculty and staff — including those responsible for revising the entry-level courses, those responsible for training tutors, supplemental instruction leaders, and other academic support providers — will be critical to tighten the link between the curriculum and support structures. Additionally, engaging deans and department chairs from departments that are being serviced by the new support courses in 2018/19 will be important to understanding how well-prepared these students are for the next sequence of courses. Campus institutional research offices have an important role to play in identifying the data needed to answer key questions about the effectiveness of the curricular changes and associated academic supports; wherever possible, campus leaders should help identify capacity for institutional researchers to collaborate with faculty on relevant studies.

Some interviewees reported that their campuses have very robust institutional research offices with the capacity and resources to undertake these types of longer-term studies. Others pointed to grant-funded efforts that have supported some of their data-informed assessment efforts. For many campuses, however, additional resources to support assessment will be necessary to ensure the ongoing

effectiveness of implementing changes under EO 1110. Chancellor's Office coordination of support and resources for such assessment efforts would be helpful to ensure that these efforts are not deprioritized or neglected due to resource constraints.

Supporting local professional development efforts aimed at ensuring consistency in instruction

At all of the campuses visited for this study, interviewees pointed to the need for sustainable professional development to ensure that curricular redesigns are implemented consistently across different instructors and through changing instructor pools. While most campuses have had at least some efforts and activities underway to provide professional development to support the course changes under EO 1110, faculty on all campuses noted that the need for professional development is ongoing. Activities have mostly been supported through one-time funds, and there may not be any dedicated resources for some kinds of activities, such as a course's lead instructor informally mentoring other instructors.

The use of part-time lecturer faculty presents some unique challenges. For example, instructors are typically paid by the course with no compensation for professional development included in their contracts. Many interviewees pointed to the need to identify and fund models for building professional development into lecturers' teaching contracts. Time is also an issue, particularly because many instructors teach at more than one college, which complicates efforts to schedule professional development events that everyone can attend. Identifying sustainable funding for training graduate students and undergraduate students who deliver supplemental instruction and/or peer tutoring is another concern.

Interviewees also indicated that ensuring consistency across multiple sections of the same course presents an ongoing challenge. In addition, many interviewees pointed to the challenge of effectively integrating content across parent courses and corequisite support courses when a corequisite course may be taught by a different instructor than its parent course and/or the corequisite course supports more than one parent course. Some campuses are using course coordinators successfully to address these challenges, as the coordinators provide professional development and other coordination to a cohort of instructors teaching the same course and/or support course. Multiple interviewees identified formalizing the role of course coordinators as a potential area in which campus leadership can initiate conversations to identify and formalize responsibilities, compensation, and ongoing support for these roles.

For composition studies courses, most interviewees identified program-wide portfolio assessment as a best practice in the field for ensuring the consistency and quality of instruction across multiple sections of the same course. Portfolio assessment can have benefits both in terms of instructor development and assessment of student learning. However, the interviewees indicated that few campuses have been able to identify sustainable funding to implement program-wide portfolio assessment.

Many campuses have moved toward active learning as part of their curricular redesign efforts, and helping instructors transition from traditional to active learning pedagogies is another challenge identified by interviewees at several campuses. This is another area in which professional development efforts could be beneficially directed.

Although each CSU campus houses a Center for Teaching and Learning to support faculty in enhancing student learning, conversations with faculty at the nine campuses in this study suggest that the centers are underutilized as a professional development support for EO 1110 implementation. Moving forward, campus leadership should take steps to promote cross-departmental conversations to consider whether and how such campuswide centers could collaborate with departmentally based efforts to provide sustainable, ongoing support.

Providing more flexibility for campuses to implement multiple measures placement and ensuring broad communication to key constituencies

All of the campuses visited for this study indicated that the new placement measures have created significant challenges in the first year of implementation. Some of these challenges were one-time only, stemming from the need to revamp existing institutional processes and data systems within a very short timeline. However, other challenges identified by interviewees are ongoing and cannot be resolved without specific efforts by the Chancellor's Office.

All of the campuses identified the timing of the availability of final high school transcripts as a significant ongoing structural challenge for the implementation of multiple measures placement. Since the multiple measures policy requires verifying high school grades, including grades in senior year math courses, final determination of students' placement categories cannot take place until just before the summer term begins. This timing has created challenges for campuses as they try to communicate clearly with students about placement recommendations and try to get students properly enrolled in courses, especially for students who may need to enroll in Early Start over the summer. In many cases, placement categories have not even been certain by the time that students arrive at the CSU campus for orientation, creating challenges for getting students appropriately enrolled in their fall courses. Efforts to address this challenge at the systemwide level are needed in order to create technological or other fixes that can expedite the transfer of grades or, if that proves impossible, to provide guidance about how campuses can best place students prior to knowing the final high school grades. One possible option would be to use seventh-semester grades (those in the middle of senior year) to determine multiple measures placement, which would require a mechanism for getting copies of transcripts in January.

At campuses that were utilizing Directed Self-Placement (DSP) prior to EO 1110, interviewees wondered about the compatibility of their DSP efforts (which those campuses have found to be highly successful) with multiple measures placement as currently designed. DSP is predicated on the idea that students, with guidance and reflection, should have some agency in determining their placement, primarily for entry-level writing courses. Representatives at such campuses would like more flexibility to retain DSP methods that have proven successful. A few interviewees also expressed a need for flexibility to be able to institute a process for overriding multiple measures placement when a student in a course appears to be misplaced or struggling.

Although most faculty and administrators who were interviewed for this study agree that moving away from high-stakes tests for determining placement was important, many also have had questions about the rationale behind the different placement categories and cutoffs used for multiple measures

placement. Some questioned why there were so few students placed in Category III in WC, for example. Regarding QR, some interviewees identified paradoxes produced by the new measures that create confusion as to the rationale behind the cutoffs for the different categories. For example, one interviewee pointed out that a high school student who opts out of taking a fourth-year math course and instead takes a class intended to increase the student's grade point average may place higher (in terms of the CSU's categories) than a student who takes a fourth-year math class and falls below the CSU's threshold for grade point average, even though the latter student may actually be more prepared than the former. Several interviewees expressed interest in efforts the Chancellor's Office is sponsoring to determine the validity of multiple measures and the resulting placement categories, and they requested ongoing evidence-based communication to campuses to help everyone better understand the rationale behind the measures.

As the Chancellor's Office continues to provide guidance and information on multiple measures, campuses will need to ensure that there are processes in place for clear communication with those who work most closely with students. Campuses should take advantage of existing advisor training activities to allow for ongoing dialogue with department chairs and/or deans and to ensure that advisors understand the placement categories and course options. Opportunities for advisors to ask questions and discuss various placement scenarios with faculty and department chairs will be important to ensure that those who work directly with students can help not only communicate the options but also ensure that the students are appropriately placed.

Building capacity for effective enrollment management

Campus interviewees also identified challenges related to enrollment planning, course scheduling, and faculty hiring associated with the implementation of EO 1110. In terms of enrollment management, the new placement categories combined with new courses and new corequisite options have made predicting the number of sections to offer difficult. Many interviewees noted that enrollment management on their campuses had already been challenging, and EO 1110 implementation has added an additional level of complexity. They noted that in the coming years the ability to predict enrollment based on prior years' experiences should increase, mitigating some of the effects of the challenge. However, the capacity for effective campuswide enrollment planning is an area in which campuses can use additional help.

Classroom scheduling and the availability of classrooms were also identified as areas of concern for some campuses. The new course designs require additional classrooms for corequisite sections, as well as new classroom configurations to accommodate the active learning approach being utilized in many of the redesigned courses. Again, the availability of classrooms that are appropriate for active learning is a larger issue that transcends the implementation of EO 1110, but it has been highlighted by some interviewees as having been brought into sharper relief by the EO 1110 implementation efforts.

Campus administrators also noted challenges related to staffing the new courses and to potential changes in patterns of hiring lecturer faculty as a result of EO 1110. If most students enroll in their entry-level WC and QR courses in the first semester, as expected, then there is a much greater need for instructors teaching those courses in the fall semester than in the spring semester. However, to maintain

a steady, consistent pool of lecturer faculty, department chairs typically need to provide assurance of year-round employment. This is an area where campus leaders could convene cross-functional teams that include department chairs, registrars, and schedulers, as well as institutional researchers, to investigate the implications of the uneven offerings of these courses from fall to spring and the potential impacts on faculty retention and consistency in instructor pools. The Chancellor's Office can also consider whether there are opportunities for the system to build better capacity on campuses for enrollment management.

Implications for Rollout of Future Student Success Initiatives

As outlined in Section VI, CSU campuses' feedback regarding the process of implementing EO 1110 provides important lessons, which may be useful to planning future initiatives. Interviewees identified four broad areas with implications for how the Chancellor's Office might roll out future initiatives focused on student success:

- balancing urgency with opportunities for iterative design;
- providing communication and supports that meet campus needs;
- supporting campuses to build capacity for cross-functional collaboration and integrated planning; and
- creating more integration and coordination of related Chancellor's Office initiatives.

Balancing urgency with opportunities for iterative design

Virtually all interviewees cited the one-year timeline as a major challenge. Moreover, the *de facto* implementation timeline appeared to be longer than one year for the nine campuses in this study, particularly when the need for professional development for instructors and iterative course redesign are factored in. For future initiatives, the Chancellor's Office may benefit from reflecting on strategies for ensuring that rollouts create a sense of urgency while also providing support for campuses to engage in an evidence-based, iterative process of design. One option could be to pilot an effort with a smaller, "implementation-ready" cohort of campuses that already have been pursuing significant changes toward the desired ends, and then use the results to inform taking the reform to scale. Another option could be scaffolding change across the entire system over a longer time period and setting achievable benchmarks for years one and two, for example, to both create urgency and acknowledge the need for iterative redesign. Consulting with CSU campuses in advance regarding how proposed timelines could negatively impact relevant institutional processes would also be useful so that mitigation strategies can be identified in advance whenever possible.

Providing communication and supports that meet campus needs

Feedback from interviewees also points to opportunities to improve the communication and supports that the Chancellor's Office provides to CSU campuses. Campus representatives would like to be engaged earlier in rollouts so they have the opportunity to provide input and expertise regarding successful

efforts that are already underway, as well as have the opportunity to identify potential negative impacts that might be mitigated with planning. Clear, consistent, and ongoing communication also will help ensure campus stakeholders' engagement and may garner more of their support. Campus representatives also have indicated that they value professional development models and supports that provide incentives for peer-based campus visits or regional exchanges, instead of systemwide convenings that are managed by the Chancellor's Office. They also appreciate the flexibility to be able to adapt supports to local needs. When resources are made available to support implementation, providing campuses with more lead time and providing them with the flexibility to use the funds in order to address local needs can help them to develop more thoughtful, strategic proposals.

Supporting campuses to build capacity for cross-functional collaboration and integrated planning

EO 1110 represents a complex policy shift that requires a high degree of cross-functional planning on campuses. The implementation effort has both catalyzed effective collaborations and exposed underlying structural challenges that impede seamless cooperation across departments and divisions, including across personnel responsible for curriculum design, professional development, communication, placement, enrollment planning, and assessment. At a number of the campuses visited for this study, interviewees praised campus leaders who stepped up to convene cross-functional teams to collaborate, which contributed to successful implementation efforts. Cross-functional collaboration and planning is important to ensure that existing campus resources and capacity are effectively leveraged in support of student success efforts. Wherever possible, the Chancellor's Office should consider what it can do to support, incentivize, and reward such collaboration in the rollout of future initiatives, including but not limited to the way it designs systemwide resources and supports. The Chancellor's Office should continue to learn from campuses about local structural impediments to collaboration and the types of systemwide supports that would work best to continue to encourage integrated planning.

Creating more integration and coordination of related Chancellor's Office initiatives

As the CSU system strives to achieve its ambitious goals for student success, many campus representatives cite "initiative fatigue" as a significant challenge. In addition, in the context of initiatives being managed by different groups within the Chancellor's Office, campus representatives report that the timelines for multiple, related Chancellor's Office initiatives are not always coordinated optimally, and the information provided is not always consistent across the groups managing these efforts. For future rollouts, more integration of implementation efforts would support campuses in integrating their planning. The findings of this study suggest that the Chancellor's Office should look for opportunities to better integrate the rollout of future student success initiatives that may have closely related impacts on campuses.

VIII. Next Steps

This report is intended to illuminate how campuses have approached the implementation of Executive Order 1110 to date. The report identifies some of the key challenges campuses faced in the first year, how some campuses are addressing those challenges, and implications for supporting implementation efforts going forward. Next in WestEd's series of studies focusing on EO 1110 implementation will be a closer look at the implementation of changes to Early Start, an analysis of student progress through the different types of supported WC and QR courses, and a validity study of the new multiple measures placement process. Additional reports will be released by WestEd over the next several years.

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Appendix A. Methodology

The research for this project included interviews and focus groups at nine of the California State University (CSU) system's 23 campuses. Although the nine campuses that were the focus of this study are not intended to comprehensively represent the entire CSU system, they do represent variations in size (from 8,000 to 40,000 undergraduates) and location (campuses in the northern, southern, and central valley regions of the state). The study included campuses that could be most impacted by Executive Order 1110 (EO 1110) based on the percentage of students requiring additional academic supports. All but one of the nine focus institutions were among the two-thirds of CSU campuses with the highest percentages of incoming students designated as requiring placement in a supported General Education course in math and/or English.[10]

Research team visits to the nine focus campuses were conducted between October 2018 and February 2019. Researchers spent one to two days on each campus, meeting both individually and in small groups with faculty, administrators, and staff who were responsible for various aspects of the implementation of EO 1110. Researchers met with the faculty on each campus who had been involved in course redesign for both math/quantitative reasoning (QR) and written communication (WC) courses, and where possible, with individuals teaching the new courses. Other interviewees included provosts, deans of undergraduate studies, academic deans, department chairs, and representatives from admissions offices, among others. Campus representatives on each campus identified the appropriate individuals for researchers to meet with and coordinated the campus visits.

The WestEd research team developed protocols with slight variations in questions depending on the roles and responsibilities of the individuals being interviewed. Interviews followed a semi-structured protocol to develop an understanding of each campus's experiences with implementing the course redesign and placement policy in response to EO 1110, with a focus on learning from those on the ground about how the implementation was progressing, what was working, and what was most challenging.

The research team met with over 180 individuals in total on the nine campuses and conducted over 70 interviews. Individuals were promised anonymity in their responses.

In most cases, focus groups and interviews were recorded and then transcribed for analysis. Where audio recordings were not done, researchers took detailed notes and used those notes in the analysis of responses. The research team developed a coding scheme to capture key themes and responses and then organized the data by these codes. Once analyses were done for each individual campus, the research team created a template that helped in systematically examining trends and differences across the nine campuses.

[10] Estimates based on the percentage of students enrolling on each campus in fall 2016 who would have been placed in Category IV based on the new multiple measures placement scheme.

Appendix B. Course Categorization Scheme

Introduction

To understand the variation in entry-level courses offered after the adoption of EO 1110 , WestEd researchers reviewed the 2018/19 course catalogs (accessed online) for each of the CSU system's 23 campuses. For each campus, researchers gathered course descriptions for entry-level math/quantitative reasoning (QR) and written communication (WC) courses. The team began by searching the catalog for courses in mathematics, statistics, and English that met the CSU's General Education requirement or that described pre-baccalaureate, corequisite support, or stretch models. Researchers then cross-referenced the catalog information with the list of courses (where available) for that campus that meet the CSU system's A2 (WC) and B4 (QR) requirements. (Note that some campuses use a different numbering system to refer to A2 and B4 GE subareas, but researchers identified those courses meeting the WC and QR requirements.) In many cases, this process led researchers to include additional courses from other disciplines. For each course, the research team documented the course number, name, units, and course description. After analyzing the course descriptions, the team developed a categorization scheme to identify the range of course options offered. Researchers temporarily coded each course according to this categorization scheme and checked these codes for accuracy with campus representatives. General categories are described in the following paragraphs.

Category Descriptions

Campuses are using a range of strategies to provide additional academic support to students who are designated to need such support — those placed in Categories III and IV (see the California State University Placement Categories text box in the main report for a description of the categories) — or to students who request additional assistance, based on Directed Self-Placement. In general, the research team found four broad categories of courses, with several variations within those categories: Traditional Single-Semester/Quarter Courses; Single-Semester/Quarter Courses with Additional Support; Multi-Semester/Quarter Sequences; and Small-Unit Support Courses.

Traditional Single-Semester/Quarter Courses: These courses allow students to meet the General Education requirement in a single semester or quarter, with no additional corequisite support required.[11]

Single-Semester/Quarter Courses with Additional Support: These courses are designed generally for students in all categories, with additional supports available for students in Categories III and IV. There are several variations of these single-term, supported courses:

- A course with a corequisite-support course attached; all students are required to take the support course. This designation is primarily for courses that are offered in the summer through Early Start.
- A course with a corequisite-support course attached; the corequisite is required only for those students in Categories III and IV.
- A course with supplemental instruction (SI) attached. SI consists of academic support through peer-assisted study sessions and is typically optional but made available to students who are enrolled in the class and want additional support.
- A course that is completed in a single term with additional support embedded during that term. In most cases, this embedded support is exemplified by an additional unit attached to the course, with additional course time with the same instructor during the week.

Multi-Semester/Quarter Sequences: This strategy includes two primary options, with some variations in each:

- Traditional multiterm stretch sequence in which the content of the traditional one-semester course is "stretched" over multiple terms (two semesters, two quarters, or three quarters). Students receive General Education credit only after completing the entire sequence.
  - There are a few models in which the stretch course has a support module (either corequisite or SI) attached to one or more terms.
- A two-term prerequisite model in which students take a first course that counts for baccalaureate credit (but not General Education credit) and then enter into a one-semester course (either traditional or supported) for their General Education credit.
  - In some cases, the prerequisite course has a support module (either corequisite or SI) attached.

Small-Unit Support Courses: Generally, these are one-unit (or sometimes two-unit) courses that provide additional support or review of basic skills for students who need extra help. These courses do not meet General Education requirements. Models include:

- Corequisite supports tied to one specific course.
- A corequisite course that is attached to multiple courses (the students who are enrolled in this corequisite course may be taking different single-term courses). This corequisite

[11] Note that several of the traditional courses, especially in calculus, include an optional lab component. Those courses have been labeled as traditional courses even though there may be a lab.

support aims to provide a broad foundation for students and is not tied to the curriculum of any one class.

- Supplemental instruction (SI): SI sessions are optional, and students often sign up after the term has begun. SI sessions are typically led by peers.
- Optional labs/workshops associated with a specific course.

Appendix C. Written Communication and Quantitative Reasoning Courses by Campus

The nine campuses visited for this research took different approaches to the development and revision of courses in response to EO 1110. In some cases, especially in written communication, campuses already had models in place that met the requirements of the new policy. The summaries below provide a snapshot of the range of entry-level WC and QR options available to students on the nine campuses. The tables for each campus include entry-level courses that either meet the General Education requirements for WC (the A2 requirements) or QR (the B4 requirements), as well as the support courses that help students meet those requirements.[12] The tables include course titles, units, an identification of the course type (based on the course categorization scheme in Appendix B), and an indication of whether or not a course meets the A2 or B4 requirement. A brief discussion following each table highlights some of the strategies the campuses are using specifically to support students in need of additional support in entry-level WC and QR courses.

California State University, Bakersfield

Table C-1. Bakersfield — 2018–2019 Entry-Level Writing Courses

Course #	Course Title	Units	Course Type	Meets A2?
ENGL 950	Critical Reading	1	Corequisite-support course tied to single parent course	No
ENGL 1100	Critical Reading and Writing	3	First term in prerequisite sequence where students enroll in this course for the first term and enroll in a traditional GE course for the second term	No
ENGL 1109	Writing and Research	3	Traditional single-term GE course	Yes

CSU Bakersfield developed two new courses in response to EO 1110. For students needing additional support, a new course (ENGL 1100) now serves as a first semester in a somewhat modified stretch

[12] Courses that are exclusively for Early Start are not included in these tables since EO 1110 calls for changes to Early Start course offerings in the summer of 2019.

model. Students who take ENGL 1100 in the first semester enroll in ENGL 1109 (the one-semester GE course) in the second semester but remain with the same faculty member and student cohort. In addition, faculty developed a one-unit corequisite-support course for students who enroll in ENGL 1109. This support course was specifically designed to address reading skills, an area in which faculty felt students needed additional support beyond what was offered in the two-semester sequence.

Table C-2. Bakersfield — 2018–2019 Entry-Level Math Courses

Course #	Course Title	Units	Course Type	Meets B4?
Math 1009	Modern Math and Applications	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
Math 951	Supplemental Modern Mathematics and Applications	1	Corequisite-support course tied to single parent course	No
Math 952	Supplemental Statistics in the Modern World	1	Corequisite-support course tied to single parent course	No
Math 953	Supplemental Number Systems and Algebraic Thinking	1	Corequisite-support course tied to single parent course	No
Math 954	Supplemental Geometry, Probability and Statistics	1	Corequisite-support course tied to single parent course	No
Math 1010	Fundamental Concepts	4	First term of stretch course with additional one-unit support attached	No
Math 1050	Precalculus I College Algebra	4	Single-term course with supplemental instruction attached	Yes
Math 1051	Precalculus I Supplement	1	Supplemental instruction course	No
Math 1209	Statistics in the Modern World	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
Math 2120	Number Systems and Algebraic Thinking	5	First term of stretch course with additional one-unit support course attached	No
Math 2200	Introduction to Statistical Concepts and Methods	4	Single-term course with supplemental instruction attached	Yes
Math 3120	Geometry, Probability, and Statistics	5	Second term of traditional stretch course	Yes
Psych 2018	Intro to Statistical Methods	3	Single-term course with supplemental instruction attached	Yes
Soc 2208	Intro to Statistics	3	Single-term course with supplemental instruction attached	Yes

Faculty at CSU Bakersfield developed a new course, Fundamental Concepts (Math 1010), that serves as a first-semester course that prepares students for either the Introduction to Statistical Concepts and Methods (Math 2200) or the Precalculus I College Algebra course (Math 1050), depending on a student's intended major. Corequisite-support courses are offered for Math 1009 and 1209, as well as the two-semester sequence designed for elementary and middle school teachers (Math 2120 and 3120). Supplemental instruction is attached to those B4 courses that do not have a corequisite.

California State University, Dominguez Hills

Table C-3. Dominguez Hills — 2018–2019 Entry-Level English Courses

Course #	Course Title	Units	Course Type	Meets A2?
ENG 108	Freshman Composition 1 Stretch 1	3	First term of stretch course where content from a single-term course is spread over two terms	No
ENG 109	Freshman Composition 1 Stretch 2	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
ENG 110	Freshman Composition 1	3	Traditional single-term GE course	Yes
ENG 112	Freshman Composition Supported	3	Single-term course with supplemental instruction attached	Yes

Faculty in Written Communications had made revisions to the curriculum and started offering a stretch version of the entry-level writing course prior to the Executive Order. Currently there are three different options for students to obtain their A2 requirement:

- A two-semester 6-unit stretch course (Eng 108 and 109) that also has supplemental instruction in class and in weekly studio courses; the class meets at same time, with the same students and instructor both semesters. Optional supplemental instruction is attached to the stretch courses, but with no additional units.
- A 3-unit one-semester course with support (Eng 112) that has supplemental instruction in class and in a weekly studio session.
- A single-semester first-year composition course (Eng 110) with no embedded supplemental instruction (although students have access to a variety of tutoring options offered through the Toro Center).

Table C-4. Dominguez Hills — 2018–2019 Entry-Level Math Courses

Course #	Course Title	Units	Course Type	Meets B4?
MAT 102	Foundation of Statistics	3	Students enroll in this course for the first term and enroll in a traditional GE course for the second term	No
MAT 131	Elementary Statistics and Probability	3	Traditional single-term GE course	Yes
MAT 132	Statistics with Algebra Review	4	Single-term course with supplemental instruction attached	Yes
MAT 105	Finite Mathematics	3	Traditional single-term GE course	Yes
MAT 151	College Algebra	4	Single-term course with supplemental instruction attached	Yes
MAT 153	Pre-Calculus	4	Single-term course with supplemental instruction attached	Yes
MAT 171	Survey of Calculus for Management and Life Sciences	4	Traditional single-term GE course	Yes
MAT 191	Calculus I	5	Traditional single-term GE course	Yes
MAT 193	Calculus II	5	Traditional single-term GE course	Yes
MAT 195	Functions and Trigonometry	5	Single-term course with supplemental instruction attached	Yes
MAT 195	Calculus Success Academy	1	Optional lab or workshop (*offered in the summer*)	Yes

Mathematics faculty at Dominguez Hills had started redesigning curricula prior to the announcement of the Executive Order. They currently offer two different pathways for students, statistics and calculus. The statistics pathway consists of what campus faculty refer to as a "stretch-like" sequence of MAT 102 (3 units) and MAT 132 (4 units including 1-unit corequisite). MAT 102 is based on a similar course offered at CSU Northridge. Category 4 students take MAT 102 in the summer and MAT 132 in the fall. Category 3 students may opt to take MAT 132 in the summer or during the academic year. Category 2 students take MAT 131, the 3-unit version of the course without a corequisite.

The calculus pathway varies by category as well. Category III and IV students begin in MAT 151 (4 units including corequisite support) in the summer, and then move to MAT 195 (a new 5-unit precalculus course including corequisite support) in the fall. Category II students can elect to take a one-unit Calculus Success Academy in the summer, and then depending on how they do, place into either the MAT 195 5-unit precalculus, MAT 153, or directly into calculus. Eventually faculty may offer another course, MAT 103, to function as a stretch-like course for Category IV students with MAT 151, similar to the sequence for the statistics pathway.

California State University, Fresno

Table C-5. Fresno — 2018–2019 Entry-Level English Courses

Course #	Course Title	Units	Course Type	Meets A2?
ENGL 1L	Writing Tutorial	1	Optional lab or workshop	No
ENGL 5A	Academic Literacy I	3	First term of stretch course where content from a single-term course is spread over two terms	No
ENGL 5B	Academic Literacy II	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
ENGL 10	Accelerated Academic Literacy	3	Traditional single-term GE course	Yes
ENGL 10H	Honors Accelerated Academic Literacy	3	Traditional single-term GE course	Yes

Fresno State has been offering a stretch version of its A2 Written Communication course since 2005, and eliminated the offering of developmental courses in English at that time. Students, through Directed Self-Placement, can elect to take either the two-semester stretch or the single-semester accelerated version of the course. Students also have the option to enroll in an optional writing lab (ENGL 1L).

Table C-6. Fresno — 2018–2019 Entry-Level Math Courses

Course #	Course Title	Units	Course Type	Meets B4?
MATH 3	College Algebra	3	First term in prerequisite sequence where students enroll in this course for the first term and enroll in a traditional GE course for the second term	No
MATH 10A	Structure and Concepts in Mathematics I	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
MATH 11	Elementary Statistics	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
MATH 45	What Is Mathematics?	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
MATH 70	Calculus for Life Sciences	4	Traditional single-term GE course	Yes
MATH 75	Calculus I	4	Traditional single-term GE course	Yes
MATH 75A	Calculus with Review IA	4	First term of stretch course where content from a single-term course is spread over two terms	Yes
CRIM 50	Statistical and Computer Applications in Criminal Justice	3	Single-term course with supplemental instruction attached	Yes

Course #	Course Title	Units	Course Type	Meets B4?
DS 71	Quantitative Analysis	3	Traditional single-term GE course	Yes
MATH 10AL	Structure and Concepts in Mathematics I with Support	4	Single-term course with embedded support	Yes
MATH 11L	Elementary Statistics with Support	4	Single-term course with embedded support	Yes
MATH 45L	What Is Mathematics? with Support	4	Single-term course with embedded support	Yes
MATH 3L	College Algebra with Support	4	Single-term course with embedded support; first term in prerequisite sequence where students enroll in this course for the first term and enroll in a traditional GE course for the second term	No

To respond to EO 1110, math faculty at Fresno State created two different types of supports, depending on the major/field of study of Category III and IV students. For those who wish to enter STEM fields, faculty at Fresno State resurrected and revised a College Algebra Course (MATH 3), which could serve as a first-semester prerequisite to either precalculus or (for this year) Decision Sciences Quantitative Analysis (DS 71). The MATH 3 course also offers a version with additional corequisite support for Category III or IV students. Students in other majors have options for other entry-level courses (MATH 10, MATH 11, and MATH 45), each of which have corequisite supports offered for students in Categories III and IV. Students majoring in Criminology fulfill their B4 requirement through CRIM 50, a statistics course that includes optional supplemental instruction. Faculty are in the process of developing a first-semester sequence course for DS 71.

Humboldt State University

Table C-7. Humboldt — 2018–2019 Entry-Level English Courses

Course #	Course Title	Units	Course Type	Meets A2?
ENGL 102	Composition and Rhetoric A	3	First term of stretch course where content from a single-term course is spread over two terms	No
ENGL 103	Composition and Rhetoric B	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
ENGL 104	Accelerated Composition and Rhetoric	3	Traditional single-term GE course	Yes
ENGL 104S	Accelerated Composition and Rhetoric	3	Traditional single-term GE course	Yes
ENGL 110	Composition and Rhetoric Lab	1	Optional lab or workshop	No

Humboldt has offered stretch English courses for many years and so did not need to make significant changes to the curriculum as a result of EO 1110. The department did, however, develop a new corequisite-support course for students in either stretch or single-semester writing courses. Once they have completed the Directed Self-Placement survey, students in Categories III and IV receive email messages recommending that they enroll in this optional lab.

Table C-8. Humboldt — 2018–2019 Entry-Level Math Courses

Course #	Course Title	Units	Course Type	Meets B4?
Math 101	College Algebra	3	Single-term course with supplemental instruction attached	Yes
Math 101i	College Algebra with Integrated Support	3	Single-term course with embedded support	Yes
Math 1	Support for College Algebra	1	Embedded-support section of embedded-support course	No
Math 101T	Trigonometry	3	Single-term course with supplemental instruction attached	Yes
Math 102	Algebra and Elementary Functions	4	Traditional single-term GE course	Yes
Math 103	Mathematics as a Liberal Art	3	Traditional single-term GE course	Yes
Math 103i	Mathematics as a Liberal Art with Integrated Support	3	Single-term course with embedded support	Yes
Math 3	Support for Mathematics as a Liberal Art	1	Embedded-support section of embedded-support course	No
Math 104	Finite Mathematics	3	Single-term course with supplemental instruction	Yes
Math 104i	Finite Mathematics with Integrated Support	3	Single-term course with embedded support	Yes
Math 4	Support for Finite Mathematics	1	Embedded-support section of embedded-support course	No
Math 105	Calculus for the Biological Sciences and Natural Resources	3	Traditional single-term GE course	Yes
Math 108	Critical Thinking in Mathematics	3	Traditional single-term GE course	Yes
Math 109	Calculus I	4	Traditional single-term GE course	Yes
Stat 108	Elementary Statistics	3	Single-term course with supplemental instruction attached	Yes
Stat 108i	Elementary Statistics with Integrated Support	3	Single-term course with embedded support	Yes
Stat 8	Support for Elementary Statistics	1	Embedded-support section of embedded-support course	No
Stat 109	Introductory Biostatistics	4	Traditional single-term GE course	Yes

Prior to the Executive Order, math faculty at Humboldt were considering options for reducing the time that students needed to spend in developmental courses and had developed a pilot corequisite-support course. Based on their experience with that pilot course, faculty determined that an embedded-support model might be more effective in order to provide students and faculty more time on a given task. Students in supported courses now spend five days a week in class with the same students and same instructor. For logistical purposes students need to sign up for a class and an accompanying support module (Math 1 with Math 101i, Math 3 with Math 103i, Math 4 with Math 104i, and Stat 8 with Stat 108i) but effectively enroll in just one class with embedded support. Optional supplemental instruction accompanies the regular Math 101, 101T, 104, and 108 courses as well.

California State University, Long Beach

Table C-9. Long Beach — 2018–2019 Entry-Level English Courses

Course #	Course Title	Units	Course Type	Meets A2?
ENGL 100S	Composition I	3	First term in prerequisite sequence where students enroll in this course for the first term and enroll in a traditional GE course for the second term	No
ASAM 100S	Composition I	3	First term in prerequisite sequence where students enroll in this course for the first term and enroll in a traditional GE course for the second term	No
AFRS 100S	Composition I	3	First term in prerequisite sequence where students enroll in this course for the first term and enroll in a traditional GE course for the second term	No
CHLS 104S	Composition I	3	First term in prerequisite sequence where students enroll in this course for the first term and enroll in a traditional GE course for the second term	No
ENGL 100	Composition II	3	Traditional single-term GE course	Yes
ASAM 100	Composition II	3	Traditional single-term GE course	Yes
AFRS 100	Composition II	3	Traditional single-term GE course	Yes
CHLS 104	Composition II	3	Traditional single-term GE course	Yes

Writing courses at Long Beach are offered by the English, Asian American Studies, African American Studies, and Chicano and Latino Studies Departments. In response to EO 1110, faculty created a new first-semester course in each department for students in Categories III and IV that serve as a prerequisite to the A2 courses.

Table C-10. Long Beach — 2018–2019 Entry-Level Math Courses

Course #	Course Title	Units	Course Type	Meets B4?
MATH 115	Calculus for Business	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
MATH 95	Foundations for Business Calculus	1	Corequisite-support course tied to single parent course	No
MATH 104	The Power of Mathematics	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
MATH 94	Foundations for Quantitative Reasoning	1	Corequisite-support course tied to single parent course	No
MATH 92	Foundations for Essential Algebra	1	Corequisite-support course tied to single parent course	No
MATH 112A	Essential Algebra A	3	First term of stretch course where content from a single-term course is spread over two terms	Yes
MATH 112B	Essential Algebra B	3	Second term of stretch course where content from a single-term course is spread over two terms	No
STAT 90	Foundations for Statistics	1	Corequisite-support course tied to multiple parent courses	No
STAT 108	Statistics for Everyday Life	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
STAT 118	Introductory Business Statistics	3	Traditional single-term GE course	Yes
MATH 111	Precalculus Trigonometry	3	Traditional single-term GE course	Yes
MATH 113	Precalculus Algebra	3	Traditional single-term GE course	Yes
MATH 119A	Survey of Calculus I	3	Traditional single-term GE course	Yes
MATH 122	Calculus	4	Traditional single-term GE course	Yes
MATH 123	Calculus II	4	Traditional single-term GE course	Yes
MTED 110	The Real Number System for Elementary and Middle School Teachers	3	Traditional single-term GE course	Yes
HDEV 190	Elementary Statistics in Social and Behavioral Sciences	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
PSY 110	Introductory Statistics	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
SOC 170	Elementary Statistics	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes

Faculty at Long Beach began reviewing their developmental math offerings and were in the early stages of designing a new quantitative reasoning course prior to the adoption of EO 1110. With the new policy, faculty moved forward with completion of that course (Math 104, the Power of Mathematics) and made several changes to other entry-level offerings as well. For students entering STEM majors, faculty designed a two-semester stretch course (Essential Algebra A and B). Somewhat unique to this course is that a student can obtain GE B4 credit upon completion of the first semester, enabling a student who decides to no longer major in a STEM field to receive GE credit in the first semester. Faculty have developed corequisite-support courses (titled "Foundations" courses) for the other entry-level courses in which a student in Category III or IV might enroll. Entry-level statistics courses are offered out of four departments: Mathematics and Statistics, Psychology, Sociology, and Human Development. The Foundations for Statistics (STAT 90) corequisite course supports all of the different discipline-based statistics courses.

California State University, Northridge

Table C-11. Northridge — 2018–2019 Entry-Level English Courses

Course #	Course Title	Units	Course Type	Meets A2?
UNIV 061	Supplemental Instruction in Writing	1	Corequisite-support course tied to multiple parent courses	No
UNIV 062	Supplemental Instruction in Writing	1	Corequisite-support course tied to multiple parent courses	No
ENGL 113A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	No
AAS 113A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	No
AFRS 113A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	No
CAS 113A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	No
CHS 113A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	No
LING 113A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	No
QS 113A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	No
ENGL 113B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	Yes
AAS 113B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	Yes
AFRS 113B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	Yes

Course #	Course Title	Units	Course Type	Meets A2?
CAS 113B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	Yes
CHS 113B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	Yes
LING 113B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	Yes
QS 113B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms; one-unit support attached	Yes
ENGL 114A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms	No
AAS 114A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms	No
AFRS 114A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms	No
CAS 114A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms	No
CHS 114A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms	No
QS 114A	Approaches to University Writing A	3	First term of stretch course where content from a single-term course is spread over two terms	No
ENGL 114B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
AAS 114B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
AFRS 114B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
CAS 114B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
CHS 114B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
QS 114B	Approaches to University Writing B	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
ENGL 115	Approaches to University Writing	3	Traditional single-term GE course	Yes
AAS 115	Approaches to University Writing	3	Traditional single-term GE course	Yes
AFRS 115	Approaches to University Writing	3	Traditional single-term GE course	Yes
CAS 115	Approaches to University Writing	3	Traditional single-term GE course	Yes
CHS 115	Approaches to University Writing	3	Traditional single-term GE course	Yes
QS 115	Approaches to University Writing	3	Traditional single-term GE course	Yes

University writing courses at Northridge are offered in the English, Asian American Studies, African American Studies, Central American Studies, Chicano Studies, Linguistics, and Queer Studies Departments. The campus has offered stretch courses since 2009 and so did not need to make changes to the writing courses as a result of EO 1110. Students have several options for fulfilling the requirement at Northridge. There are two different two-semester stretch sequences in each department; the first (the 113 sequence) has a corequisite support attached (UNIV 61 and 62). The second (the 114 sequence) is a stretch sequence without the supplemental instruction. The final option (the 115 courses) are single-semester writing courses. Tutoring is available to students enrolled in any of the writing courses.

Table C-12. Northridge — 2018–2019 Entry-Level Math Courses

Course #	Course Title	Units	Course Type	Meets B4?
Univ 60A	SI Math 131	1	Supplemental Instruction course	No
Math 102	Precalculus	3	Traditional single-term GE course	Yes
Math 102L	Precalculus Lab	1	Optional lab or workshop	No
Math 103	Mathematical Methods for Business	3	Traditional single-term GE course	Yes
Math 103L	Mathematical Methods for Business Laboratory	1	Optional lab or workshop	No
Math 105	Precalculus II	5	Traditional single-term GE course	Yes
Math 105L	Precalculus II Lab	1	Optional lab or workshop	No
Math 106	Mathematical Foundations for Non-Calculus Physics	5	Traditional single-term GE course	Yes
Math 131	Mathematical Ideas	3	Single-term course with supplemental instruction attached	Yes
Math 140	Introductory Statistics	4	Traditional single-term GE course	Yes
Math 150A	Calculus I	5	Traditional single-term GE course	Yes
Math 150AL	Calculus I Laboratory	1	Optional lab or workshop	No
Math 255A	Calculus for the Life Sciences	3	Traditional single-term GE course	Yes
Math 255AL	Calculus for the Life Sciences Lab	1	Optional lab or workshop	No
Math 331	Mathematical Explorations	3	Traditional single-term GE course	Yes
Math 196QR	Non-STEM Pathway Prep	5	First term in prerequisite sequence where students enroll in this course for the first term and enroll in a traditional GE course for the second term	No
Math 196S	STEM Pathway Prep	5	First term in prerequisite sequence where students enroll in this course for the first term and enroll in a traditional GE course for the second term; supplemental instruction attached	No

Prior to EO 1110, faculty at Northridge had developed a course (Math 196QR) as an alternative to the developmental courses to better prepare students who were in need of additional support. They began offering the course as a first-semester prerequisite for students in non-STEM pathways in mathematics beginning in the spring of 2018. Upon completion of this course, students can move into the Introductory Statistics or Mathematical Ideas courses. For students in STEM pathways, faculty developed a similar first-semester course (Math 196S), offered for the first time in fall 2018. Students who complete this course can move on to Precalculus. Northridge is piloting some additional innovations. Faculty will pilot test whether some students in Category III may be able to be successful entering into the Math 131 (Mathematical Ideas) course right away, without the prerequisite 196QR course. In addition, the campus developed a program called PASS (Power to Advance with Support to Succeed) for students who started but did not successfully complete the Math 196S or 196QR course in the fall. Offered during the winter intercession at no cost to students, the goal of PASS is to offer these students the opportunity to do extra work that will enable them to move to their required GE mathematics course instead of repeating the prerequisite course during the spring 2019 term. PASS uses ALEKS PPL as an online learning platform, with support available through the tutoring center. Campus representatives note that they are trying to determine ways to improve upon this pilot program moving forward.

California State University, Sacramento

Table C-13. Sacramento — 2018–2019 Entry-Level English Courses

Course #	Course Title	Units	Course Type	Meets A2?
ENGL 5	Accelerated Academic Literacies	3	Traditional single-term GE course	Yes
ENGL 5M	Accelerated Academic Literacies for Multilingual Students	3	Traditional single-term GE course	Yes
ENGL 10	Academic Literacies I	3	First term of stretch course where content from a single-term course is spread over two terms, with additional one-unit support attached	No
ENGL 10M	Academic Literacies I for Multilingual Students	3	First term of stretch course where content from a single-term course is spread over two terms, with additional one-unit support attached	No
ENGL 11	Academic Literacies II	3	Second term of stretch course where content from a single-term course is spread over two terms, with additional one-unit support attached	Yes
ENGL 11M	Academic Literacies II for Multilingual Students	3	Second term of stretch course where content from a single-term course is spread over two terms, with additional one-unit support attached	Yes
ENGL 1X	Composition Tutorial	1	Supplemental instruction course	No
ENGL 85	Grammar for Multilingual Writers	2	Corequisite-support course tied to multiple parent courses	No
ENGL 60	Reading for Speed and Efficiency	2	Optional lab or workshop	No
ENGL 121	Writing Center Tutoring	1	Corequisite-support course tied to multiple parent courses	No

Sacramento State began offering stretch writing courses several years prior to the Executive Order and so did not need to make changes to these curricular offerings in WC. The campus continues to offer students a single-semester as well as a two-semester option, and students may elect to enroll in sections designated for multilingual students. Additional supports are offered through one-unit courses including a composition tutorial, a reading lab, and a course offering grammar support for multilingual writers. The campus is piloting an embedded tutoring program to support students in all first-year writing courses. Students can also enroll in a writing center tutoring course for one unit of credit.

Table C-14. Sacramento — 2018–2019 Entry-Level Math Courses

Course #	Course Title	Units	Course Type	Meets B4?
MATH 29	Pre-Calculus Mathematics	4	Single-term course with supplemental instruction attached	Yes
MATH 1	Mathematical Reasoning	3	Single-term course with supplemental instruction attached	Yes
MATH 10	Essentials of Algebra	3	First term in prerequisite sequence where students enroll in this course for the first term and enroll in a traditional GE course for the second term	No
MATH 12	Algebra for College Students	3	First term in prerequisite sequence where students enroll in this course for the first term and enroll in a traditional GE course for the second term	No
MATH 17	An Introduction to Exploration, Conjecture, and Proof in Mathematics	3	Traditional single-term GE course	Yes
MATH 24	Modern Business Mathematics	3	Single-term course with supplemental instruction attached	Yes
MATH 26A	Calculus I for the Social and Life Sciences	3	Traditional single-term GE course	Yes
MATH 26B	Calculus II for the Social and Life Sciences	3	Traditional single-term GE course	Yes
MATH 30	Calculus I	4	Single-term course with supplemental instruction attached	Yes
MATH 31	Calculus II	4	Single-term course with supplemental instruction attached	Yes
MATH 35	Introduction to Linear Algebra	3	Traditional single-term GE course	Yes
STAT 1	Introduction to Statistics	3	Single-term course with supplemental instruction attached	Yes
STAT 10A	Introductory Statistics with Developmental Mathematics	3	First term of stretch course where content from a single-term course is spread over two terms, with additional one-unit support attached	No

Course #	Course Title	Units	Course Type	Meets B4?
STAT 10B	Introductory Statistics with Developmental Mathematics	3	Second term of stretch course where content from a single-term course is spread over two terms, with additional one-unit support attached	Yes
STAT 50	Intro to Probability and Statistics	3	Traditional single-term GE course	Yes
EDUC 18	Mathematical Practices Across Cultures	3	Traditional single-term GE course	Yes
NSM 12 P	Peer Assisted Learning Stat 1	1	Supplemental instruction course	No
NSM 12 B	Peer Assisted Learning Math 29	1	Supplemental instruction course	No
NSM 12 E	Peer Assisted Learning Math 30	1	Supplemental instruction course	No
NSM 12 F	Peer Assisted Learning Math 31	1	Supplemental instruction course	No
MATH 99-01*	Supplemental Instruction for Math 10A	1	Supplemental instruction course	No
MATH 99-02*	Supplemental Instruction for Math 10B	1	Supplemental instruction course	No
MATH 99-03*	Supplemental Instruction for Math 1	1	Supplemental instruction course	No
MATH 99-04*	Supplemental Instruction for Math 24	1	Supplemental instruction course	No
MATH 99-05*	Supplemental Instruction for Math 10	1	Supplemental instruction course	No
MATH 99-06*	Supplemental Instruction for Math 10	1	Supplemental instruction course	No

***Section designations are not static and course numbers may change with each term.**

In response to EO 1110, Sacramento State math faculty revised two former developmental courses and developed new first-semester credit-bearing courses that would serve as prerequisites for GE courses for students in any category. Math 10 (Essentials of Algebra) is designed for students who would be going on to Statistics, Business Math, or other math courses not based in calculus. Math 12 (Algebra for College Students) was designed to lead into the precalculus class. Additional courses offered for students designated as needing additional support include Math 1 (a QR course that has been redesigned to include a more active learning pedagogy) and Educ 18, which is an Ethno-mathematics course. The campus also offers a stretch version of statistics, Stat 10A and 10B. Other entry-level courses, including Precalculus, Modern Business Mathematics, and Statistics and Mathematical Reasoning, include an optional supplemental instruction course.

California State University, San Bernardino

Table C-15. San Bernardino — 2018–2019 Entry-Level English Courses

Course #	Course Title	Units	Course Type	Meets A2?
ENG 102A	Stretch Composition I	4	First term of stretch course where content from a single-term course is spread over three terms	No
ENG 102B	Stretch Composition I for Multilingual Students	4	First term of stretch course where content from a single-term course is spread over three terms	No
ENG 103A	Stretch Composition II	4	Second term of stretch course where content from a single-term course is spread over three terms	No
ENG 103B	Stretch Composition II for Multilingual Students	4	Second term of stretch course where content from a single-term course is spread over three terms	No
ENG 104A	Stretch Composition III	4	Third term of stretch course where content from a single-term course is spread over three terms	Yes
ENG 104B	Stretch Composition III for Multilingual Students	4	Third term of stretch course where content from a single-term course is spread over three terms	Yes
ENG 105A	Accelerated Stretch Composition I	4	First term of stretch course where content from a single-term course is spread over two terms	No
ENG 105B	Accelerated Stretch Composition I for Multilingual Students	4	First term of stretch course where content from a single-term course is spread over two terms	No
ENG 106A	Accelerated Stretch II	4	Second term of stretch course where content from a single-term course is spread over two terms	Yes
ENG 106B	Accelerated Stretch II for Multilingual Students	4	Second term of stretch course where content from a single-term course is spread over two terms	Yes
ENG 107	Advanced First-Year Composition	4	Traditional single-term GE course	Yes

CSU San Bernardino is planning for conversion from the quarter to semester system (fall 2020) so specific course offerings will change at that time. The campus has offered one-, two-, and three-quarter versions of its first-year composition course for about ten years. Students use Directed Self-Placement to determine which version is best for them. San Bernardino also offers a version of the two- and three-quarter sequence specifically for multilingual students.

Table C-16. San Bernardino — 2018–2019 Entry-Level Math Courses

Course #	Course Title	Units	Course Type	Meets B4?
MATH 110	College Algebra	4	Traditional single-term GE course	Yes
MATH 11A	Accelerated Stretch College Algebra A	4	First term of stretch course where content from a single-term course is spread over two terms	No
MATH 111B	Accelerated Stretch College Algebra B	4	Second term of stretch course where content from a single-term course is spread over two terms	Yes
MATH 112A	Stretch College Algebra A	4	First term of stretch course where content from a single-term course is spread over three terms	No
MATH 112B	Stretch College Algebra B	4	Second term of stretch course where content from a single-term course is spread over three terms	No
MATH 112C	Stretch College Algebra C	4	Third term of stretch course where content from a single-term course is spread over three terms	Yes
MATH 115	Ideas of Mathematics	4	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
MATH 115L	Ideas of Mathematics Lab	1	Corequisite-support course tied to a single parent course	No
MATH 116A	Accelerated Stretch Ideas of Math A	4	First term of stretch course where content from a single-term course is spread over two terms	No
MATH 116B	Accelerated Stretch Ideas of Math B	4	Second term of stretch course where content from a single-term course is spread over two terms	Yes
MATH 117A	Stretch Ideas of Math A	4	First term of stretch course where content from a single-term course is spread over three terms	No
MATH 117B	Stretch Ideas of Math B	4	Second term of stretch course where content from a single-term course is spread over three terms	No
MATH 117C	Stretch Ideas of Math C	4	Third term of stretch course where content from a single-term course is spread over three terms	Yes
MATH 120	Pre-Calculus Mathematics	4	Traditional single-term GE course	Yes
MATH 165	Introductory Statistics and Hypothesis Testing	4	Traditional single-term GE course	Yes
MATH 192	Methods of Calculus	4	Traditional single-term GE course	Yes
MATH 211	Basic Concepts of Calculus	4	Traditional single-term GE course	Yes

While the campus is moving toward its quarter to semester conversion, math faculty at CSU San Bernardino have developed a two- and three-quarter sequence for their College Algebra and Ideas of Mathematics courses. Students in Category IV will be placed into the three-quarter version while students in Category III will be placed into the two-quarter version. Completion of Early Start allows a Category IV student to move into the two-quarter sequence in the fall, or a Category III student to enroll

in the single-quarter course. Faculty are working on developing a Quantitative Reasoning Lab that they would like to see offered as a corequisite to these courses once the semester conversion is complete.

San Francisco State University

Table C-17. San Francisco — 2018–2019 Entry-Level English Courses

Course #	Course Title	Units	Course Type	Meets A2?
ENG 104	First Year Composition Stretch	3	First term of stretch course where content from a single-term course is spread over two terms	No
ENG 105	First Composition Stretch	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
ENG 114	First Year Composition	3	Traditional single-term GE course	Yes
ENG 209	First Year Composition Multilingual	3	Traditional single-term GE course	Yes

San Francisco State has offered a Stretch Composition course for over a decade, when the university eliminated its developmental English offerings. Prior to registering for their composition course, students engage in a Directed Self-Placement module called "Write to Register" that helps them to consider which composition course will best meet their needs. Students can choose between a two-semester stretch model, a single-semester course, or a single-semester course designed for multilingual students.

Table C-18. San Francisco — 2018–2019 Entry-Level Math Courses

Course #	Course Title	Units	Course Type	Meets B4?
MATH 107	Math for Business Calculus I	3	First term of stretch course where content from a single-term course is spread over two terms	No
MATH 108	Math for Business Calculus II	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
MATH 110	Business Calculus	3	Traditional single-term GE course	Yes
MATH 112	Support for College Mathematics	2	Corequisite-support course tied to multiple parent courses	No
CSC 110	Computational Thinking and Quantitative Reasoning	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
PHIL 111	The Art(s) of Quantitative Reasoning	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
MATH 122	Mathematics for Statistical Quantitative Reasoning	2	Corequisite-support course tied to multiple parent courses	No

Course #	Course Title	Units	Course Type	Meets B4?
ISED 160	Data Analysis in Education	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
PSY 171	Quantitative Reasoning in Psychology	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
MATH 123	Mathematics for Elementary Statistics	2	Corequisite-support course tied to a single parent course	No
MATH 124	Elementary Statistics	3	Single-term course with corequisite-support course attached where the corequisite is only required for those in placement categories III or IV	Yes
MATH 197	Prelude to Calculus I	3	First term of stretch course where content from a single-term course is spread over two terms	No
MATH 198	Prelude to Calculus II	3	Second term of stretch course where content from a single-term course is spread over two terms	Yes
MATH 199	Pre-Calculus	4	Traditional single-term GE course	Yes
AU 116	Algebra and Statistics for Social Justice	4	Single-term course with embedded support	Yes
AU 117	Statistics for Social Justice	3	Traditional single-term GE course	Yes
MATH 226	Calculus I	4	Traditional single-term GE course	Yes
DS 110	Calculus with Business Applications	3	Traditional single-term GE course	Yes

In response to the Executive Order, math faculty at San Francisco State designed several corequisite-support courses as well as two different two-semester stretch courses in business calculus and precalculus. The stretch business calculus course (Math 107 and 108) was designed specifically to allow for more business applications in the study of calculus and is a two-semester version of Math 199. The precalculus stretch sequence (Math 107 and 198) is a stretched version of Math 110. Faculty also developed separate two-unit support courses (Math 112 and 122) for students in Categories III and IV who enroll in one of the college mathematics (PHIL 111, CSC 110), statistical quantitative reasoning (ISED 160, PSY 171), or Statistics (MATH 124) courses. Finally, faculty in the Metro College Success program on campus developed a new B4 course entitled Statistics for Social Justice; there are two versions of this course. Students in Categories III and IV enroll in a 4-unit course where additional support for algebraic concepts is embedded into the curriculum.