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Are High School Diplomas Really a Ticket to College and Work?

An Audit of State High School Graduation Requirements

By Laura Jimenez and Scott Sargrad March 2018



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Contents

1	Introduction and summary
6	Background
8	Overarching methods
9	State-by-state comparison: Coursework requirements for high school graduation and state college admissions
19	State-by-state comparison: Course type and sequence alignment
28	State-by-state comparison: Quality review
34	Recommendations
36	Conclusion
37	About the authors
38	Appendix A
40	Appendix B
47	Endnotes

Introduction and summary

By at least one measure—rising high school graduation rates—educational attainment in the United States is the highest it has ever been. Without subsequent increases in college graduation, youth employment, and civic participation rates, however, questions persist around the quality of education that the high school diploma represents. And, in light of recent scandals regarding graduation rate inflation in places such as Washington, D.C., and other large school districts, a deeper understanding is needed about high school graduation that takes into account more than simply how many students receive a diploma.¹

A high school education should ensure students are eligible for their chosen pathway of what comes next: college and careers, as well as civic life. Put simply, high school coursework requirements for a basic, nonadvanced high school diploma matter because they create, or stifle, what is possible for students as they progress through and beyond high school.

To date, the education reform debate has rightfully focused on standards, defining what students should know and be able to do, ensuring that expectations are high for all students and are aligned with college academic standards. At the same time, the politicization and polarization of the Common Core State Standards dominated the debate. Little of substance about coursework requirements, which is another important aspect of academic expectations, received any attention in the education reform discussion, save the media attention on graduation rate scandals. However, rigorous academic standards mean little if students do not have to take courses that are aligned with standards' full breadth.

The authors reviewed high school coursework requirements for each state, including Washington, D.C., and Puerto Rico, and uncovered major problems with the expectations states set to receive a basic, nonadvanced high school diploma. First, most of these requirements fail to meet the admissions criteria for states' respective public university systems. Second, these requirements leave many decisions up to students, such as which math courses to take to fulfill coursework requirements;

without sufficient preparation or guidance counseling, students may take courses that are misaligned with their postsecondary aspirations. And third, without sufficient resources to ensure that all students can meet rigorous coursework requirements, problems such as tracking students into less rigorous courses and using nefarious practices to get students across the graduation finish line will persist.

To understand the extent to which diploma requirements denote eligibility for a student's chosen postsecondary pathway of choice, this report analyzes state high school graduation requirements for a basic, nonadvanced high school diploma. The authors organize their analysis into three main areas: years of study required by subject matter for high school graduation and state college admission; course type and sequence required by subject matter for high school graduation and state college admission; and how high school graduation requirements stack up against measures of quality.

This analysis answers two key questions regarding the basic, nonadvanced high school diploma for each state:

- Are high school graduation requirements for a standard, nonadvanced diploma aligned with requirements for admission to the state's public university system?
- Are high school graduation requirements aligned with college and career readiness benchmarks and indicators of a “well-rounded” education—one that includes coursework and other educational experience in, among other topics, computer science, engineering, health, music, and technology?²

Answering these questions provides policymakers, educators, parents, and students with information about whether the high school diploma a student receives denotes eligibility for their postsecondary pathway of choice: admission to a state's four-year public university system; further study in a career and technical education (CTE) field; or direct entry into a career or the military. Ideally, the answers should be “yes” to both questions in every state.

Rigorous expectations for a high school diploma are a critical first step to preparing all students for success after graduation. However, these rigorous expectations must be matched with rigorous systems of support—including excellent teachers, effective curricula and instructional materials, access to challenging coursework, and other key resources—to ensure that students in fact meet these expectations and are not artificially promoted through the high school diploma granting process.

In almost every state for at least one subject, there is a preparation gap that necessitates students seeking admission to the state public four-year university system to take additional coursework that is not required for a standard high school diploma. What's more, this additional coursework may or may not be offered on the high school campus. For example, according to the Civil Rights Data Collection (CRDC) by the U.S. Department of Education, 1 in 10 high schools do not offer Algebra I, and 2 in 10 do not offer Algebra II—courses that are critical to success in college.³ Students in high-income schools and districts with sufficient college counseling and resources to seek this additional coursework may have an easier time addressing these disparities than students in low-income areas, reflecting inequity in the availability of educational resources.

The preparation gap can have significant impacts, especially on under-resourced student populations. Nationwide, there is one college counselor for every 491 students, but in low-income schools and schools with high percentages of students of color, the ratio can be as high as one counselor for 1,000 students.⁴ At this rate, students—particularly low-income students and students of color—are far more likely to have insufficient support in helping them navigate the differences between high school graduation requirements and college entrance requirements.

The preparation gap can also have implications on student readiness for college-level coursework. Research shows that students graduating with a state's standard high school diploma need remedial coursework at higher rates than those with the advanced diploma, and lower rates of students overall seek the advanced pathway.⁵ Unfortunately, the college remediation rates by high school diploma types remain a mystery nationwide, as states must only report the graduation rate for the diploma awarded to the majority of students.

Students need support in identifying what coursework will satisfy both high school diploma and college admission requirements. High school diploma requirements are often not straightforward, offering students multiple options to fulfill requirements, most usually in math, science, social studies, and foreign language, whereas colleges are usually more specific about the coursework required. This lack of specificity in high school requirements means that without sufficient support from guidance counselors or tech-based solutions, such as virtual college counseling, students may be unaware that they are not truly prepared for college.

Students may also find themselves ill-prepared for life after high school for reasons other than academic coursework that is not aligned with state public university entrance requirements. This analysis compares high school graduation requirements for a state's standard diploma with a quality rubric, which includes known college- and career-readiness benchmarks, such as a 15-credit college readiness high school course sequence and at least three courses in the same CTE field.⁶ The rubric also includes elements of a well-rounded education.⁷ Again, only a handful of states meet any of these quality benchmarks—and no state meets them all.

One promising approach to address the alignment and quality concerns is competency-based graduation requirements. Instead of measuring how many credits students take in specific subjects, competency-based requirements require students to demonstrate mastery of academic knowledge through assessments or other means. But this approach is still in the early stages, and it is not yet known how well it will work to address the quality of learning. That being the case, this analysis does not focus on the competency-based approach.

Ultimately, this analysis finds that students can graduate high school having done well in their courses, but still might not have met the requirements to enroll in college because of the problem of misalignment. Additionally, because state high school graduation requirements do not meet the full range of quality standards—college readiness, career readiness, and a well-rounded education—even if the requirements are aligned to college entrance requirements, students might not be truly prepared for the next step.

Finally, this report includes specific policy solutions to address the preparation gap. While solutions are discussed later in greater detail, the authors recommend that states should:

- Ensure clear alignment of the requirements for high school graduation with the admissions requirements for the state's public university system.
- Require completion of the 15-credit college-ready coursework required by most public university systems to receive a standard high school diploma.
- Offer an additional “career-readiness diploma” for students that choose not to attend a four-year university.
- Publish the graduation rates disaggregated by student group and diploma type.

- Ensure that all districts have the resources and educator workforce to offer the courses and preparation needed for students to meet the requirements for both standard and career-readiness diplomas, especially in math, science, and foreign language.
- Develop and maintain systems to monitor districts on appropriate methods to collect and analyze graduation requirement completion.

If the goal is to do more than business as usual in education, a thoughtful approach must be taken to the question of how best to ensure that all students are prepared for work and life after high school. Put simply, a high school diploma ought to be a ticket to success—not a worthless credential.

Background

In the United States, a high school diploma represents the satisfactory completion of education from kindergarten through 12th grade. The diploma typically represents the completion of coursework for grades nine through 12 in math, reading, social studies, science, and a range of elective subjects such as fine arts and physical education. A high school diploma can also, but less frequently, represent the completion of specific tests, so-called capstone—or culminating projects, internships, and other work required to complete high school.

The diploma is so important that most jobs in the United States require at least this credential as a basic prerequisite for employment.⁸ Yet, there is significant variation in the level of achievement the diploma represents state-to-state. The sole requirement regarding uniformity in high school graduation is the method by which to calculate how many students receive a diploma within four—or more—years.⁹ Beginning with the 2010-11 graduating class of public high schools, states were required to publish a cohort rate that compares graduates with the ninth-grade class four years earlier. However, due to significant flexibility in determining who counts as a first-time ninth-grade student—which students count as transfers leaving the cohort—and what counts as graduation, there is still wide variation in what this number represents state-to-state.¹⁰ Despite this variation, national high school graduation rates have increased every year since the 2010-11 school year, up to 83 percent in 2014-15.¹¹

It is important to emphasize that this rate represents the achievement of very different requirements from one state to the next, as graduation requirements are set by each state and are sometimes even determined by the district.¹² As a result, the amount and type of coursework and extracurricular activities vary by state.

The amount of study required in each high-school subject to result in the receipt of a standard diploma should meet or exceed what is required for admission to public state university systems. Since every state public university system in the

United States requires a diploma from an accredited high school, having academic alignment between these systems would send a consistent signal about what it means to be college-ready.

The next section of this report analyzes the amount and type of coursework and extracurricular activities needed to graduate high school with a standard high school diploma, compared with what is required for entry to the state university.¹³ The analysis is followed by an assessment of the quality of the requirements against benchmarks of college readiness, career readiness, and a well-rounded education.

Overarching methods

For this report, the authors only reviewed state-level high school coursework requirements needed to receive a basic, nonadvanced high school diploma. In some states, these may be the sole requirements that exist, while in others, these may be in addition to what the local school district requires. Additionally, states may have more than one pathway to the nonadvanced diploma—one for the general student population and another for students with disabilities who may need modifications in the coursework requirements. This analysis excludes the latter. Each state administers a public university system, usually with more than one campus. The authors selected a single public, four-year university located in a major urban center in states with multiple campuses.

This analysis also does not address subject-specific study pathways, a practice that includes enrolling students in specific subjects that are aligned and relevant to their chosen program of study and career goals.

Finally, the District of Columbia and Puerto Rico are considered states, bringing the total potential number of states to be included in this analysis to 52, though for reasons described in the methods for the amount of course study and course type analysis, several states are excluded.

State-by-state comparison: Coursework requirements for high school graduation and state college admissions

Coursework requirements for both high school graduation and college admissions fall into two areas: years of study required and type of coursework, or course sequence. This section focuses on years of study.

Methods: Years of study alignment

The analysis for this report reviews the amount of course study required to receive a state's basic high school diploma, called the "default diploma" in a recent analysis.¹⁴ As a result, this analysis excludes consideration of advanced or other diploma options that students can opt into.

These requirements are reviewed against a state's public university system admissions criteria for academic coursework in the following subjects: math, English, science, social studies, foreign language, fine arts, physical education/health and electives. The authors organize results into three categories: less than, meets, and exceeds college expectations.

- Course study amounts to less than college expectations when high schools require any less number of coursework units in a particular academic subject.
- Amount of high school course study meets college expectations when both systems require the same number of units in each subject.
- Course study requirements in high school exceed college expectations when they require any more number of coursework units in a subject.

To calculate the amount of study required, the authors used Carnegie units. One Carnegie unit equals 120 hours of class time over the course of a year. Most states already use this method, so no conversion was required. Any states not using Carnegie units were converted to the Carnegie method for this analysis. Such states used a different numbering system to refer to 120 hours of class time, for example, 2 units to represent 120 hours rather than 1 or 10 units rather than 1.

The years of study analysis includes all states except the following: Colorado, Maine, Massachusetts, and Pennsylvania.¹⁵ These states require demonstration of mastery in lieu of specific coursework unit requirements. New Hampshire students are required to demonstrate mastery of specific academic subjects and courses in order to be awarded credit; for this reason, this state is included in this analysis.¹⁶ The total number of states included in this portion of the analysis is 48.

While both the high school and college systems use Carnegie units to measure learning time, the number of units required varies by subject for each system.

Each state received its state data compiled for this report to review for accuracy. The following states either provided direct feedback or documentation of the state's high school graduation requirements: Alaska, Arizona, Colorado, Florida, Georgia, Idaho, Illinois, Kentucky, Maryland, Massachusetts, Montana, Nebraska, Nevada, New Jersey, New York, Pennsylvania, South Dakota, Tennessee, Texas, Utah, Washington, D.C., Washington state, and Wisconsin.

Analysis results: Years of study alignment

Years of study captures how much study students must complete in a school subject area. Although high school from entry through graduation is typically a four-year process, students do not always have to complete four years of study in every subject to graduate.

To be sure, this metric alone does not measure academic readiness because it does not account for content mastery. This is especially true when students complete courses with low grades or the academic standards on which the courses are based are not rigorous. This analysis acknowledges that completing required units of study is just one aspect of academic learning, although it is one of the primary measures of academic attainment used by the broader U.S. public education system.

Table 1 provides an overview of the number of years of study required for math, English, science, social studies, foreign language, physical education, and electives to earn a basic high school diploma.

TABLE 1
Comparison of high school graduation and state college admissions course unit requirements

Count of states that meet, do not meet, or exceed college expectations, by subject

Subject	Does not meet college expectations	Meets college expectations	Exceeds college expectations
Math	8	29	11
English	1	44	3
Science	4	34	10
Social studies	4	24	20
Foreign language	23	23	2
Physical education	0	9	39
Fine arts	2	28	18
Electives	2	16	30

Source: Author's analysis of state requirements for high school graduation and for state college admissions; the source for each state's requirements is included in the source appendix.

Across each category of comparison—less than, meets, exceeds college expectations—select high-level results follow. There is the least alignment for the number of units required in the foreign language subject area. Almost half of states require less than college expectations when it comes to the foreign language requirement, usually two years of study. In math, while a large majority of states meet or exceed college expectations, still nearly 1 in 5 states require less than college expectations. It is important to note that while there seems to be a high degree of alignment in the years of study for science, there is potentially a high degree of misalignment in course type, which is further explained in the course type analysis. There is most agreement in the units required for English, where 44 states meet college expectations, usually four years of study. Finally, a majority of states exceed expectations for physical education units.

Within each subject, the results are as follows for unit count alignment between high school and state college organized by the following categories: less than, meets, and exceeds college expectations.

TABLE 2

Comparison of high school graduation and state college admissions course unit requirements

States that meet, do not meet, or exceed college expectations

Key

- × Does not meet college expectations in the number of units for this subject
- ✓ Meets college expectations in the number of units for this subject
- + Exceeds college expectations in the number of units for this subject
- N/A States excluded from this portion of the analysis

States	Math	English	Science	Social studies	Foreign language	Physical education	Art	Electives
Alabama	+	✓	+	✓	×	+	✓	✓
Alaska	+	+	+	+	✓	+	✓	✓
Arizona	✓	✓	✓	+	×	✓	✓	+
Arkansas	✓	✓	✓	✓	✓	+	✓	+
California	×	×	✓	+	×	+	×	✓
Colorado	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Connecticut	+	✓	+	+	✓	+	+	✓
Delaware	+	✓	✓	×	✓	+	✓	+
District of Columbia	+	+	+	+	+	+	+	+
Florida	✓	✓	✓	✓	✓	✓	+	+
Georgia	✓	✓	✓	✓	✓	+	✓	+
Hawaii	✓	✓	✓	+	✓	+	✓	+
Idaho	✓	✓	✓	✓	✓	+	✓	+
Illinois	✓	✓	✓	✓	✓	✓	✓	✓
Indiana	×	✓	✓	✓	✓	+	✓	+
Iowa	✓	✓	✓	+	×	+	+	✓
Kansas	✓	✓	✓	✓	✓	+	+	✓
Kentucky	✓	✓	✓	✓	×	+	✓	✓
Louisiana	✓	✓	✓	✓	✓	+	✓	+
Maine	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Maryland	×	✓	✓	✓	×	+	+	✓
Massachusetts	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Michigan	+	✓	+	✓	✓	+	+	✓
Minnesota	✓	✓	✓	+	×	✓	✓	+
Mississippi	+	✓	✓	+	✓	+	✓	+
Missouri	✓	✓	✓	✓	✓	+	✓	+
Montana	×	✓	✓	×	✓	+	+	✓

States	Math	English	Science	Social studies	Foreign language	Physical education	Art	Electives
Nebraska	×	✓	✓	✓	×	✓	✓	✓
Nevada	✓	✓	✓	✓	✓	+	✓	+
New Hampshire	✓	✓	×	×	×	+	+	+
New Jersey	✓	✓	+	+	×	+	+	✓
New Mexico	✓	✓	✓	+	×	+	✓	+
New York	✓	✓	✓	✓	×	+	+	+
North Carolina	✓	✓	✓	+	×	+	✓	+
North Dakota	✓	✓	✓	✓	✓	+	✓	+
Ohio	+	✓	✓	+	×	+	+	+
Oklahoma	✓	✓	✓	✓	✓	✓	+	+
Oregon	✓	✓	✓	✓	×	+	✓	+
Pennsylvania	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	+	+	+	+	+	+	+	+
Rhode Island	+	✓	+	+	×	✓	✓	+
South Carolina	✓	✓	✓	✓	×	✓	×	+
South Dakota	✓	✓	✓	✓	✓	+	✓	✓
Tennessee	✓	✓	✓	+	✓	+	✓	+
Texas	×	✓	×	+	✓	+	+	+
Utah	+	✓	✓	+	×	+	+	+
Vermont	✓	✓	✓	✓	×	+	+	✓
Virginia	✓	✓	+	+	✓	+	✓	✓
Washington	✓	✓	+	✓	×	+	+	+
West Virginia	✓	✓	✓	+	×	+	✓	+
Wisconsin	×	✓	×	×	×	+	✓	×
Wyoming	×	✓	×	✓	×	✓	✓	×

Source: Author's analysis of state requirements for high school graduation and for state college admissions; the source for each state's requirements is included in the source appendix.

Table 2 provides a comparison of high school graduation and state four-year public university coursework admissions requirements in math, English, science, social studies, foreign language, physical education (PE), art, and electives.

Analysis results: Math years of study comparison

Table 2 shows that eight states require less units of math than their respective state four-year public university. The California and Montana public university systems require three years of math, one year more than what is required for a high school diploma. The remaining states in this category all require four years of math for their respective public university systems while high schools in these states only require three or three and a half years of study for a high school diploma.¹⁷

The number of units of high school math required to earn a diploma in 29 states meet college expectations. Nineteen of these states require three years of math for both the high school and public university systems; the remainder require four years.

Finally, the number of high school math units required by 11 states exceed college expectations. Of those states all but Alaska, Puerto Rico, and Washington, D.C. exceed the public university admissions requirements by one year. Alaska, Puerto Rico, and Washington, D.C.'s, high school requirements exceed college expectations because their public university systems set no specific coursework requirements for math.¹⁸

Of course, the types of math courses and the sequence in which those courses are taken matters in high school graduation and college admissions. The course type analysis below discusses these specifics.

English years of study comparison

Table 2 shows that one state—California—fails to meet college expectation in years of study in English. California's public university system requires four years of English but to receive a high school diploma, the state requires only three years.

Forty-four states meet expectations in years of English study. For these states, both the public university and high school systems require four years of English.

Finally, three states exceed college expectations in years of study of English: Alaska, Puerto Rico, and Washington, D.C., again because these public university systems set no specific coursework requirements.

Science years of study comparison

According to Table 2, four states require less than the number of units required of science for high school graduation than for college admissions. These four states require one full year less of science to receive a high school diploma than is required for their respective public university system admissions.

Thirty-four states meet expectations of number of years of study in high school science for both systems. Most of these states require three years of study for both the public university and high school systems. A handful of states require two or four years for both systems.

Ten states exceed expectations in the number of years of study of high school science. Most of these states require one more year of science to receive a high school diploma than needed to qualify for public university admissions. The public university systems in Alaska and Washington, D.C., set no specific coursework requirements, so their high school systems automatically exceed expectations.

Importantly, science requirements span three component parts: years of study, subject, and course type. State high school graduation requirements can be misaligned in any of these areas. Later analysis in this report deals with subject and course type alignment.

Social Studies years of study comparison

Table 2 shows that four states fail to meet college expectations in the years of study of high school social studies, while 24 meet those expectations and 20 exceed them.

Those with less than college expectations in social studies are Delaware, Montana, New Hampshire, and Wisconsin. All of these states with the exception of New Hampshire require one year fewer for a high school diploma than is required for public university admission. New Hampshire requires one fewer semester.

Most of the states meeting college expectations require three years of study; a handful require two, two and a half, or four years for both the high school and public university systems.

Most of the states exceeding college expectations require one year more of social studies for a high school diploma than is required for public university admissions. A few states require one more semester. A few states—Alaska, the District of Columbia, and Puerto Rico—also require three more years than is required by the public university system. As noted earlier, these states do not include social studies in its college admissions criteria.

Foreign language years of study comparison

Twenty-three states require less than college expectations in the number of years of foreign language study. Another 23 states require the same number of years of study in foreign language for both the high school diploma and college admissions.

Almost all of the states not meeting college expectations do not require or make optional any study of foreign language to receive a high school diploma. The state public university systems in all but one state, Alabama, require two years of study in this subject.

Two states—Puerto Rico and Washington, D.C—exceed these expectations since their public university systems set no specific coursework requirements.

While states do not differentiate on the particular language of study for high school or college, colleges often require students to study the same language to get credit for this requirement. The extent to which states require study of the same foreign language will be assessed in the course type analysis section below.

The following subjects—physical education, art, and electives—are overall required to a lesser degree for college admissions than for high school graduation compared with other subjects. As a result, most states exceed college expectations in these areas.

Physical education and/or health years of study comparison

No state requires less than expected for college admissions in years of study for physical education and health.

Nine states require the same number of years of study to earn a high school diploma and meet the threshold for state public college admissions. For all of these nine states, the study of physical education is not required for the high school or public university systems.

The remaining 39 states exceed college expectations in years of study required in physical education and health. This means that 48 states in total meet or exceed the number of years of study in physical education and health than is required for college admissions. About half of these states require from one semester to one year of physical education and health for both high school and public university systems. Seventeen states require one and a half to two years and two states—New Jersey and New York—require three years for both systems.

Fine arts years of study comparison

Two states—California and South Carolina—do not meet college expectations for years of study of fine arts. Both require one year fewer of fine arts study for a high school diploma than is required for public university admissions.

Twenty-eight states require the same number of years of study in this subject. All 28 states do not require or make optional the study of fine arts for both the high school and public university system.

Eighteen states exceed college expectations in number of years of fine arts study. This is a sum total of 46 states meeting or exceeding college expectations in fine arts. Most of these states require one full year more of fine arts study in high school than is required for public university admissions. A handful require one semester or one and a half years more of fine arts study.

Electives years of study comparison

Two states—Wisconsin and Wyoming—require less than college expectations in the number of years of study in electives. Their high school systems make no requirements for electives, but their public university systems require two years for admission.

Sixteen states require the same number of years of study for high school graduation and college admissions. Most of these states require no electives for both the high school graduation and public university admissions systems. Two states, California and Wisconsin, have other course requirements for high school graduation that will likely fulfill their respective public university system admissions requirements for electives.

Thirty states exceed college expectations in years of study of electives. A total of 46 states meet or exceed college expectations in years of study of electives. The difference in the amount of study varies most widely for electives, as high school systems require between one semester and four full years more of study of electives than their respective public university systems.

State-by-state comparison: Course type and sequence alignment

Depending on course availability and the boundaries drawn by graduation requirements, students have discretion in the types of courses they take to fulfill high school graduation requirements. States may require all of the specific courses and sequences to be taken, for example, Algebra I, Geometry, and Algebra II—or their equivalents—where three years of math are required. Where four years are required, states may require only some of the specific courses, for example, Algebra I and Geometry, and allow students to choose among the options to fulfill two additional math course requirements. Or, states may simply require a number of years of study and make no course type specifications. Each of these scenarios are also true for college admissions. This portion of the analysis focuses on the extent to which there is a match in the course types and sequence required for high school graduation and state college admissions.

Methods: Course type and sequence alignment

This analysis compares the type of courses required in math, English, science, social studies, foreign language and “other” coursework required to receive a high school diploma against the courses required to be eligible for college admissions. The unit requirement analysis looks at 47 states, including the District of Columbia and Puerto Rico. The authors excluded five states from this analysis—Colorado, Maine, Massachusetts, Pennsylvania, and Vermont—because they require demonstration of mastery in lieu of specific course type requirements.

The authors base course type solely on the name of the course. For example, Algebra I and Geometry are two different types of math courses. This analysis does not include course curriculum or other course completion requirements in determining course type.

The authors organize findings into three categories: does not align, aligns, and could align with the right course sequence taken.

- Course types align when, in order to meet high school diploma requirements, students must take the same or more rigorous courses than are required for college admissions. For example, both high school and college systems might require completion of Algebra II in math, or both systems may require three years of study in math and be silent on the course types. Another obvious alignment occurs when high school courses are specified for diploma attainment and are not specified for college admission, but the years of study required for both are the same. All three scenarios would be an obvious match.
- Course types do not align when high schools require less rigorous courses for a diploma than is required for college admissions. For example, high schools might require completion of Geometry and college requires completion of Algebra II, which is a higher level of math.
- Course types could align when there is flexibility in either or both the high school or college course selections. For example, high schools and college may require students to take four total years of math courses, but high schools require up to Algebra I plus three additional courses and college requires up to Algebra II.

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Analysis results: Course type and sequence alignment

Table 3 provides an overview of the types of courses required for math, English, science, social studies, foreign language, and other for 47 states. This analysis finds that high schools and colleges do not typically require specific course types in physical education and/or health, fine art, and elective subjects. As a result, this analysis aggregates these courses into a single group that the authors signify as other.

Within each subject, the results are as follows for course type and sequence alignment between high school and state college organized by the following categories: does not align, aligns, and could align depending on student course choice.

TABLE 3
Comparison of high school graduation and college admissions
course type requirements

Count of states that align, do not align, or could align with college expectations
depending on students' choices, by subject

Subject	Aligns	Does not align	Could align, per student choice
Math	23	8	16
English	44	3	0
Science	17	5	25
Social Studies	44	1	2
Foreign language	23	22	2
Other requirements: physical education and health, fine arts, career and technical education, electives	40	0	7

Source: Author's analysis of state requirements for high school graduation and for state college admissions; the source for each state's requirements is included in the source appendix.

Across each category of comparison, there is the most alignment for the type of courses required for social studies. Forty-four of the 47 states included in the analysis require the same type of social studies courses for high school graduation as they do for college admissions, usually U.S. history, world history, and government or civics. Forty-four states also align in their coursework requirements for English between the high school and public university systems. In stark contrast is foreign language, where 22 states do not require two years of study in the same foreign language as required by their state colleges for admission. Finally, high school science requirements in 25 states could align with college expectations depending on student course-taking choice. Most usually, students must decide to take a laboratory science course—and almost always, biology, chemistry, and physics are laboratory science courses. But if schools lack the resources, schools may restrict these courses to being text-based or simply not offer them.

Table 4 below provides more detailed results of the course type analysis by state and subject.

TABLE 4

Comparison of high school graduation and college admissions course type requirements

States that align, do not align, or could align with college expectations depending on students' choices

Key

- × Does not align with college expectations in course type for this subject
- ✓ Aligns with college expectations in course type for this subject
- ✓/+ Could align with college expectations in course type for this subject, depending on students' choices
- N/A State excluded from this portion of the analysis

States	Math	English	Science	Social studies	Foreign language	Other
Alabama	✓	✓	✓/+	✓	×	✓
Alaska	✓	✓	✓	✓	✓	✓
Arizona	✓	✓	✓/+	✓	×	✓
Arkansas	✓	✓	✓/+	✓	✓	✓
California	×	×	✓/+	✓	×	✓
Colorado	N/A	N/A	N/A	N/A	N/A	N/A
Connecticut	✓	✓	✓/+	✓	✓/+	✓
Delaware	✓	✓	×	×	✓	✓
District of Columbia	✓	✓	✓	✓	✓	✓
Florida	✓	✓	✓	✓	×	✓
Georgia	✓/+	✓	✓/+	✓	✓	✓
Hawaii	✓	✓	✓	✓	✓	✓/+
Idaho	✓/+	✓	✓/+	✓	✓	✓
Illinois	✓/+	×	✓/+	✓	✓	✓
Indiana	×	✓	✓/+	✓	×	✓
Iowa	✓	✓	✓/+	✓	×	✓
Kansas	✓	✓	✓/+	✓	✓	✓
Kentucky	✓	✓	✓/+	✓/+	×	✓
Louisiana	✓	✓	✓	✓	✓	✓
Maine	N/A	N/A	N/A	N/A	N/A	N/A
Maryland	×	✓	✓/+	✓	×	✓
Massachusetts	N/A	N/A	N/A	N/A	N/A	N/A
Michigan	✓	✓	✓	✓	✓/+	✓
Minnesota	✓	✓	✓/+	✓	×	✓
Mississippi	✓	×	✓	✓	✓	✓
Missouri	×	✓	✓/+	✓	✓	✓
Montana	×	✓	✓/+	✓/+	✓	✓/+
Nebraska	✓/+	✓	✓/+	✓	×	✓

States	Math	English	Science	Social studies	Foreign language	Other
Nevada	✓/+	✓	✓	✓	✓	✓
New Hampshire	✓/+	✓	×	✓	×	✓
New Jersey	✓/+	✓	✓	✓	×	✓
New Mexico	✓	✓	✓/+	✓	×	✓
New York	✓	✓	✓	✓	×	✓
North Carolina	✓	✓	×	✓	×	✓
North Dakota	✓/+	✓	✓/+	✓	✓	✓
Ohio	✓	✓	✓/+	✓	×	✓/+
Oklahoma	✓/+	✓	✓/+	✓	✓	✓/+
Oregon	✓/+	✓	✓	✓	×	✓
Pennsylvania	N/A	N/A	N/A	N/A	N/A	N/A
Puerto Rico	✓	✓	✓	✓	✓	✓
Rhode Island	✓/+	✓	✓/+	✓	×	✓
South Carolina	✓/+	✓	✓/+	✓	×	✓/+
South Dakota	✓	✓	✓	✓	✓	✓
Tennessee	✓	✓	✓	✓	✓	✓
Texas	×	✓	×	✓	✓	✓
Utah	✓/+	✓	✓/+	✓	×	✓
Vermont	N/A	N/A	N/A	N/A	N/A	N/A
Virginia	×	✓	✓	✓	✓	✓/+
Washington	✓/+	✓	✓/+	✓	×	✓
West Virginia	✓/+	✓	✓	✓	✓	✓
Wisconsin	×	✓	✓	✓	✓	✓
Wyoming	×	✓	×	✓	×	✓/+

Source: Author's analysis of state requirements for high school graduation and for state college admissions; the source for each state's requirements is included in the source appendix.

Math course type and sequence alignment comparison

High school math course types generally proceed along the following sequential order: Algebra I, Geometry, Algebra II/Trigonometry and Calculus, or Integrated Math I, Integrated Math II, and so on, for states adopting an integrated math instruction approach that combines concepts from different types of math into a single course.

As depicted in Table 4, 23 states align in the course type and sequence required for high school mathematics and for college admissions in this subject. Aligned math course type generally includes completion of Algebra II or higher for high school graduation and college admissions.

Eight states do not align between high school graduation and college admissions expectations in math. High school math coursework that is not aligned with college expectations can be one, two, or three full levels below. Indiana and Texas require one level below, while California and Maryland require two levels of math below. Missouri, Montana, Wisconsin, and Wyoming do not specify the math course types, so this counts as being three levels below, as per state requirements students could take any math courses in high school. Although, there may be district-level requirements students must meet.

Sixteen states could align between high school graduation requirements and college admissions requirements in math, depending on student course-taking choices.

Potential alignment of math course type involves student flexibility to choose one or more of their high school math courses, while the public university system requires specific math courses. For example, Georgia requires Algebra I, Geometry, and Algebra II and an additional course for high school graduation, while the state's public university system requires these specified courses plus an additional higher-level math course. Georgia high school students could take statistical reasoning, and this would not meet the public university's requirements.

English course type and sequence alignment comparison

High school English curriculum is usually called English language arts or English composition for both the high school and college systems and includes a combination of reading and writing. This study finds that there is the least variation in the course type and sequence for this subject than any other.

Forty-four states align in the courses required for English when comparing high school graduation and college eligibility requirements. Alignment means that all 44 states require English language arts or English composition I-IV for high school graduation and college admissions.

Three states do not align in the courses required in English for high school graduation and for college admissions. These are California, Illinois, and Mississippi. California only requires English composition I-III; Illinois allows for English credit to be gained in other writing-intensive courses; and Mississippi only requires English composition I and II.

Science course type and sequence alignment comparison

There are two components to high school science curricula. One is the specific subject, for example, biology, chemistry, and physics—also known as life, earth, and physical sciences. These courses may also include a laboratory component. Both the high school and college systems may or may not be particular about requiring the lab component. Notably, schools lacking resources may not offer lab experiences. According to the U.S. Department of Education’s Office for Civil Rights, which conducts a regular audit of course availability, 87 percent of high schools offer biology, 75 percent offer chemistry, and 63 percent offer physics.¹⁹

This analysis considers the subject and lab component to determine alignment.

Table 4 shows that 17 states align in the type of science study—both the subject and lab component—required to receive a high school diploma and to be eligible for college admissions. The following scenarios are all aligned because either the high school and public university systems do not require science course types; only the public university make no science course type specifications; or both systems make the same specifications in science subject, for example, biology, chemistry and/or physics or both specify laboratory science.

Five states do not align in the type of science study—both the subject and lab component—required for a high school diploma and for college admissions. Lack of alignment occurs when high schools make no laboratory science requirements for graduation but public universities do.

Twenty-five states could align if students take the right course sequence. This scenario occurs when states do not make high school science course type specifications for a diploma but these distinctions are made by their respective public university systems. In this instance, it is up to students to take the right course sequence to qualify for university admission.

Social studies course type and sequence alignment comparison

Social studies curricula in high school generally includes U.S. history, world history, government/civics and, less frequently, state history and economics. Forty-four states align in the type of social studies coursework required to fulfill high school graduation and college admissions requirements.

Alignment in social studies course type occurs when both the high school and public university systems require the same sequence or type of social studies coursework, usually including U.S. history, world history, civics, and economics or geography. In addition, alignment occurs when colleges offer flexibility in the social studies course types that qualify for admissions.

Table 4 shows that one state does not require the same type of social studies courses, specifically world history, for high school graduation as is required for college admissions.

Two states could align if students take the right sequence of social studies courses in high school. In both cases the states do not specify social studies course types as do their respective public university systems.

Foreign language course type and sequence alignment comparison

Both the high school and public university systems do not require study of a specific foreign language. However, according to this analysis, the study of a single foreign language is often required by public university systems.

As shown in Table 4, 23 states align in the study of foreign language for high school graduation and college admissions. Alignment occurs when the study of foreign language is optional or not required for both the high school and public university systems. Or, both the high school and public university systems require two years of the same foreign language.

Twenty-two states do not align in the study of foreign language for high school graduation and college admissions because their public universities require study of the same foreign language for admissions but this is not required by their respective high school systems.

Two states could align if students take the same foreign language for two years, which is required by their respective public university systems.

Other course type and sequence alignment comparison

Course types classified as “other” include physical education and health, fine arts, CTE, electives, and other courses that do not fit these groups, such as financial literacy.

Table 4 shows that all but seven states align the requirements for high school graduation and their respective state public university systems for other course types. Since this match rate is so high and the course types vary so widely, this analysis will focus on the examples where course type does not align.

Other course types do not align when public universities require additional college preparation courses, which may or may not be satisfied by a students’ choice in electives in high school. Additionally, public university systems require specific electives not required by their respective high school systems.

Course type misalignment implications

Given the degree of misalignment in the types of courses and their sequence, states may be providing flexibility at the expense of college eligibility. Clear alignment in the type and amount of study required sends a clear signal about what it means to be college ready. While all students may not be bound for a brick and mortar college campus, they should all at least be eligible to choose this pathway, especially given the compelling evidence that rigorous coursework leads to higher outcomes regardless of college attendance.²⁰

State-by-state comparison: Quality review

This analysis makes a judgment of the quality of state high school graduation requirements based on an assessment of meeting five criteria: a 15-credit college-ready curriculum, a three-credit CTE curriculum in the same field, a well-rounded education, and alignment with state college requirements for course type and years of study. The fifth criteria is meeting two or more of these.

Methods: Quality review

Most states have attempted to define college and career readiness—about half of them comprehensively—by addressing a range of skills, including academic knowledge, critical thinking, social emotional abilities, and civic engagement in a formal or informal written definition of this term.²¹

This analysis also reviews the extent to which high school graduation requirements reflect several benchmarks of college and career readiness and a well-rounded education, given the recent federal attention on providing students a holistic education. The Every Student Succeeds Act (ESSA) refers to a well-rounded education as one that includes coursework and other educational experience in, among other topics, computer science, engineering, health, music, and technology.²²

Specifically, this analysis addresses the following questions as it relates to the basic, nonadvanced high school diploma, excluding honors or career pathways:

- Does any state require a minimum 15-credit college-ready curriculum?
- Does any state require three courses in the same CTE field?
- Does any state address a well-rounded education via life skills courses, financial literacy, online learning, business and communications, or civic engagement?

- Is any state completely aligned in high school graduation and college admissions expectations for the amount and type of coursework required?
- Finally, does any state meet all four of these criteria?

This analysis provides a count of states meeting each criterion.

Overview of the quality criteria

In addition to measuring alignment of high school graduation requirements and college admission requirements, this analysis makes a judgment on the quality of the former using each of the criterion outlined above. What follows is a brief description of each criterion and the rationale for its inclusion in this analysis.

15-credit college-ready curriculum

Recent research as well as this analysis find that most state colleges require a student complete a minimum high school curriculum to be eligible for admissions. This includes four years of English; three years in math up to Algebra II; three years of laboratory science, including biology and chemistry or physics; three years of social studies, including U.S. or World History; and two years of the same foreign language study—notably, many colleges allow study of American Sign Language to meet this requirement.²³

Though an incomplete measure of readiness for the next step after high school, high school coursework is important to assess as it serves as a gatekeeper for entry into many college systems. What's more, there is persuasive evidence that even without a college credential, students that take the 15-credit course sequence have better life outcomes.²⁴

That said, as CRDC data show, not all high schools offer rigorous academic courses, and this may not be by choice. States have chronic shortages of teachers in math, traditional sciences, and foreign language instruction, among other subjects.²⁵ Despite federal incentives to increase the numbers of teachers in these fields, the reporting of shortages in these subject areas goes back to at least when these data were first collected, in 1990.²⁶

Three courses in the same CTE field

Students who take three or more courses in the same CTE field are more likely to graduate than their peers and are more prepared to continue study in that field following high school graduation.²⁷ Such students are also deemed “high-credentialed” by recent research because they achieve the same or higher life outcomes as college-goers.²⁸ As a result, a significant policy advancement would be to require both the 15-credit college-ready coursework and three-credit CTE coursework for students pursuing career pathways after high school.

Students following this path are prepared for additional study resulting in the receipt of a certificate denoting specialized study, for example, food handling. Furthermore, they are positioned for other certification conveying mastery in a trade such as welding; or a degree of two or more years—including associate’s, bachelor’s, or higher degrees; or a license denoting legal licensure such as those required by registered nurses.²⁹

Given that a significant portion of jobs available currently and in the near future will require some college but less than a four-year degree, concentrated study in a particular trade can be one pathway to access employment in in-demand fields.³⁰

Like the teacher shortages described above, shortages of qualified teachers also persist, and are perhaps more urgent, in CTE fields. Many CTE fields require instructors to have highly advanced technical skills in addition to strong teaching skills, requirements that contribute to a shortage of CTE teachers in two-thirds of states.³¹

Coursework or other experiences within a well-rounded education

The 2015 passage of the ESSA marks a concerted effort to expand beyond the notion in No Child Left Behind (NCLB) of an academic curriculum that focuses entirely on what policymakers considered a core academic curriculum.³² This curriculum included English language arts, mathematics, science, history, arts, geography, economics, civics and government, and foreign language. Though expansive, NCLB’s core academic curriculum leaves out the knowledge of skills and abilities critical in the current economy. In contrast, ESSA specifically speaks to computer science, engineering, technology, and CTE.³³

Complete alignment of high school and college admissions course expectations

This quality element counts how many states with completely aligned coursework requirements, in both the amount of study and course type.

Cohesiveness

This count looks at how many states meet two or more of the four above-noted measures of quality for their high school graduation requirements.

Overview of results: Quality review

Overall, no state met all measures of quality. A small handful meet four of the five, as shown in the table below.

Two states require a 15-credit college-ready curriculum: Louisiana—for its college-ready diploma pathway not its career-ready pathway diploma—and Tennessee.

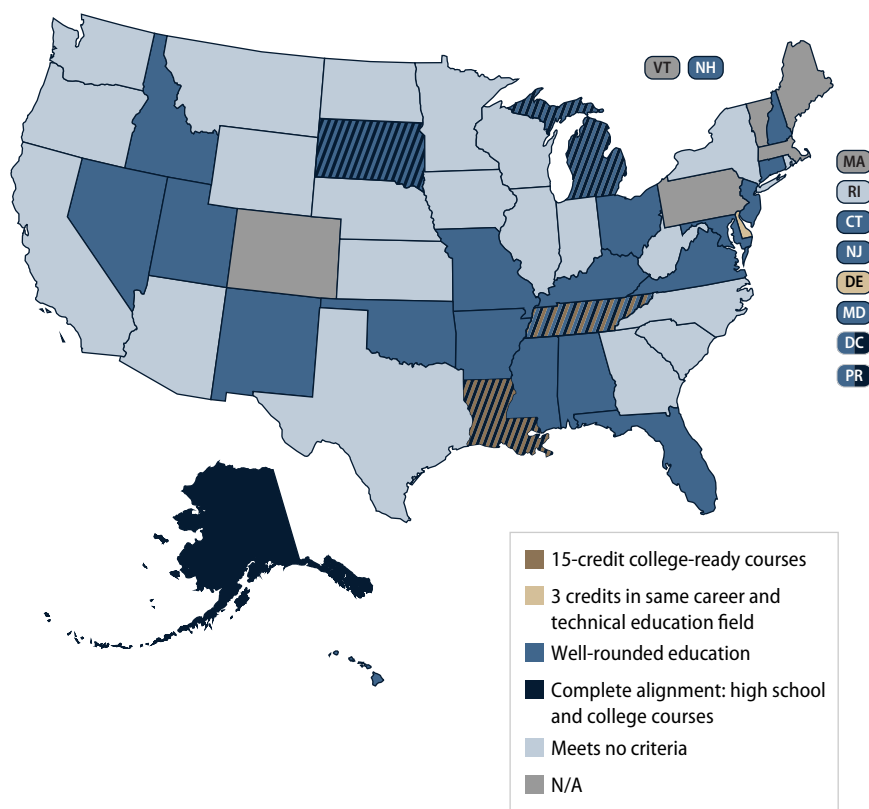
One state—Delaware—requires students to take three courses in a career pathway. Notably, Delaware also came close to meeting the 15-credit college-ready curriculum. It misses the mark within its science requirements because it does not require chemistry or physics.

Four states—Alabama, Montana, Utah, and Washington state—require career preparation courses or CTE, but fewer than three courses. More often, states indicate that CTE coursework is optional, including California, Georgia, Hawaii, Illinois, Maryland, North Dakota, Oregon, South Dakota, and Virginia. Since none of these states meet the three-credit CTE in the same field threshold, they are not represented in Figure 1.

Twenty-three states require some element of a well-rounded education. This can be coursework or other educational experiences, including life skills—sometimes called 21st-century skills, financial literacy, online learning, communications, business, community service, or the completion of a senior project.

FIGURE 1

States meeting high school graduation requirements quality criteria



Notes: Colorado, Maine, Massachusetts, Pennsylvania, and Vermont were excluded from this portion of the analysis. State public colleges in Alaska, District of Columbia, and Puerto Rico make no course requirements.

Source: Author's analysis of state requirements for high school graduation and for state college admissions; the source for each state's requirements is included in the source appendix.

Four states—Louisiana, Michigan, South Dakota, and Tennessee—have aligned requirements to receive a high school diploma with admissions eligibility for the state public university system because they are aligned across math, English, science, social studies, fine arts, physical education and/or health, foreign language, and electives. Three additional states are also aligned—Alaska, Puerto Rico, and Washington, D.C.—but only because their respective public university systems do not make specific coursework requirements; these states are aligned by default.

When considering all of these criteria together, no state meets them comprehensively for their basic diploma, although it should be noted that they some do try to approach this alignment with honors diplomas or recommended requirements, such as Massachusetts. Massachusetts' recommended course of study is aligned

to its public university system, but because its official basic diploma requirements only include proficiency demonstrations via assessments and coursework in social studies, its basic diploma is not aligned. Figure 1 shows which states meet two or more of these criteria.

One area of focus that this analysis does not address is the idea of different graduation pathways. The Alliance for Excellent Education recently completed a report looking at graduation rates by diploma pathways and the disparities are stark.³⁴ Far fewer students of color and low-income students graduate with the most rigorous diploma option. The extent of this issue on a national scale is unknown, as states are not required to publish graduation rate data disaggregated by subgroup and by diploma pathway.

It is worth noting that Delaware and Louisiana, given their policies in career pathways, could be the first states to meet all of the quality criteria. However, broadly speaking and despite state rhetoric on the importance of addressing readiness for college, careers, and beyond, state policies fail to meet this ideal overall.

Recommendations

This analysis reveals significant policy gaps for state high school graduation requirements when compared with state college admissions requirements and a series of benchmarks of readiness for college, career, and life.

To address these gaps, states should:

- Ensure clear alignment of the requirements for high school graduation with the admissions requirements for state public university system. This will require the collaboration and coordination of the high school and state college systems in the areas of course type, amount, and curricula. One subject area that needs careful consideration is science, since misalignment can occur because public universities require laboratory science and providing this type of science may be particularly challenging for under-resourced school districts.
- Require completion of the 15-credit college-ready coursework required by most public university systems to receive a standard high school diploma. Research shows that noncollege-goers have better life outcomes if they take a rigorous high school course load regardless of college enrollment.³⁵ This includes all of the following courses, or demonstrations of mastery of their equivalents: three years of math up to Algebra II; four years of English composition; three years each of social studies and science, including biology, chemistry, physics, with laboratory experience; and two years of the same foreign language.³⁶ Any advanced or honors diplomas offered by states should exceed these expectations and could align with requirements for math and science college majors.
- Offer an additional career-readiness diploma for students that choose not to attend a four-year university. This diploma should require at least three CTE courses in the same field in addition to the 15-credit college-ready coursework. States should make these courses available to all students and ensure that they are in in-demand fields within the local labor market that lead to a well-paying job.

- Publish the graduation rates disaggregated by student group and diploma type, for example, the race, ethnicity, income, and disability status of students who received a standard high school diploma and other diploma options. Also, states report the disaggregated postsecondary outcomes for each diploma type, including course-taking patterns, credit accumulation, and college graduation rates.
- Ensure that all districts have the resources and educator workforce to offer the courses and preparation needed for students to meet the requirements for both standard and career readiness-diplomas, especially in math, science, and foreign language. This could include using technology solutions to enhance course access for students.
- Develop and maintain systems to monitor districts on appropriate methods to collect and analyze graduation requirement completion. Such systems would help to ensure the integrity and accuracy of the data.

By addressing these gaps, students will be assured that their high school diploma denotes eligibility for their postsecondary pathway of choice, such as admission to a state college institution or further study in a CTE field.

Conclusion

The concepts of college, career, and life readiness receive significant attention in public policy discourse. What these actually mean in practice—especially when it comes to what high school students must study in order to receive a diploma—has been a mystery, until now.

Unfortunately, this analysis finds significant misalignment between the high school and college systems. What is required to receive a high school diploma is often not aligned with what students must study to be eligible for college admissions. This can be a matter of equity when more rigorous coursework such as advanced math, laboratory science, and foreign language courses are not offered on the high school campus, thus requiring college-bound students to seek this coursework elsewhere.

This analysis audits the coursework policies for high school graduation, as compared with public university admissions requirements, and does not assess what is being taught in high school courses. Given the gap between low rates of proficiency in academics and rising graduation rates, it is almost a guarantee that America's schools are graduating students who have not learned as much as they should in high school.³⁷

Certainly, state high school graduation requirements are only a start to ensuring students are ready for college, career, and life. Many states allow or even require school districts to set additional requirements. However, not setting a minimum floor that at the very least meets state college admissions requirements puts students in districts with less rigorous requirements at a disadvantage, setting up inequities within states in access to college preparatory and career-readiness experiences.

If states are serious about college, career, and life readiness, then they ought to review and modify their high school graduation requirements to ensure that they meet the benchmarks set forth in this analysis.

When high school diplomas reflect rigorous requirements and actual mastery of those requirements, they will truly be a valuable credential that provides graduates with the options to enroll in college or start a rewarding career.

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The authors would like to thank the following individuals for their assistance in compiling and reviewing data and for their support in providing feedback: Rhea Handa, Jim Hull, Ryan Reyna, Caroline Scown, Sarah Shapiro, and Claire Voorhees.

Appendix A

TABLE A1
States meeting high school graduation requirements quality criteria

Key

×	Does not meet this criterion
✓	Meets this criterion
✓*	Meets this criterion with a reservation: State public college makes no course requirements
N/A	State excluded from this portion of the analysis

States	15-credit college-ready courses	3 credits in same career and technical education field	Well-rounded education	Complete alignment: high school and college courses	Meets two or more criteria
Alabama	×	×	✓	×	×
Alaska	×	×	×	✓*	×
Arizona	×	×	×	×	×
Arkansas	×	×	✓	×	×
California	×	×	×	×	×
Colorado	N/A	N/A	N/A	N/A	N/A
Connecticut	×	×	✓	×	×
Delaware	×	✓	×	×	×
District of Columbia	×	×	✓	✓*	×
Florida	×	×	✓	×	×
Georgia	×	×	×	×	×
Hawaii	×	×	✓	×	×
Idaho	×	×	✓	×	×
Illinois	×	×	×	×	×
Indiana	×	×	×	×	×
Iowa	×	×	×	×	×
Kansas	×	×	×	×	×
Kentucky	×	×	✓	×	×
Louisiana	✓	×	×	✓	✓
Maine	N/A	N/A	N/A	N/A	N/A
Maryland	×	×	✓	×	×

States	15-credit college-ready courses	3 credits in same career and technical education field	Well-rounded education	Complete alignment: high school and college courses	Meets two or more criteria
Massachusetts	N/A	N/A	N/A	N/A	N/A
Michigan	×	×	✓	✓	✓
Minnesota	×	×	×	×	×
Mississippi	×	×	✓	×	×
Missouri	×	×	✓	×	×
Montana	×	×	×	×	×
Nebraska	×	×	×	×	×
Nevada	×	×	✓	×	×
New Hampshire	×	×	✓	×	×
New Jersey	×	×	✓	×	×
New Mexico	×	×	✓	×	×
New York	×	×	×	×	×
North Carolina	×	×	×	×	×
North Dakota	×	×	×	×	×
Ohio	×	×	✓	×	×
Oklahoma	×	×	✓	×	×
Oregon	×	×	×	×	×
Pennsylvania	N/A	N/A	N/A	N/A	N/A
Puerto Rico	×	×	✓	✓*	×
Rhode Island	×	×	×	×	×
South Carolina	×	×	×	×	×
South Dakota	×	×	✓	✓	✓
Tennessee	✓	×	✓	✓	✓
Texas	×	×	×	×	×
Utah	×	×	✓	×	×
Vermont	N/A	N/A	N/A	N/A	N/A
Virginia	×	×	✓	×	×
Washington	×	×	×	×	×
West Virginia	×	×	×	×	×
Wisconsin	×	×	×	×	×
Wyoming	×	×	×	×	×

Source: Author's analysis of state requirements for high school graduation and for state college admissions; the source for each state's requirements is included in the source appendix.

Appendix B

The sources listed below provided the information for state high school graduation and state public university admissions requirements.

Alabama State Department of Education, “2017 AL High School Graduation Requirements” (2018), available at <https://www.alsde.edu/sec/sct/Pages/graduationinformation-all.aspx>.

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