House Bill 5 and High School Endorsements: How Do They Align to College Admissions?

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Summary

This policy brief describes the Texas high school graduation requirements put into effect through the passage of House Bill 5 in 2013. The brief also contends the introduction of academic endorsements, similar to college majors and intended to help high school students develop subject-area knowledge, may create clearer paths to selective college enrollment for students studying STEM (science, technology, engineering, and mathematics) than other academic subject areas. Of the five subject-area endorsements outlined in House Bill 5, STEM has the most rigorous requirements in science and math, both in terms of the credits and courses required. A content analysis of state four-year college admissions websites reveals selective institutions are more likely to require or recommend more science and math credits and specific advanced courses than nonselective institutions. These findings suggest schools and school districts should consider aligning requirements among endorsements, as well as ensure middle and high school guidance counselors provide information to students and families about how each endorsement could impact advancement to college, particularly selective four-year colleges.

Key Points

- Texas House Bill 5 introduced new statewide high school graduation requirements in 2013, including the academic endorsement system.
- Endorsements are similar to college majors and are intended to help high school students develop subject-area knowledge.
- There are five endorsements: arts and humanities; business and industry; public services; STEM; and multi-disciplinary.
- The STEM endorsement has more rigorous course requirements than non-STEM endorsements:
    - It is the only endorsement to require students to complete algebra II, chemistry, and physics or principles of technology.
    - While non-STEM endorsements require four credits of math and four credits of science, just like the STEM endorsement, they do not explicitly require students to take these courses.[1]
- The STEM endorsement credit and course requirements are most aligned to selective college admissions, which are more likely than nonselective institutions to require or recommend four credits of math or science, as well as algebra II, chemistry, or physics.

[1] Students who choose the multi-disciplinary endorsement are required to take either chemistry or physics, but not both.

Foundation High School Program and Endorsements

In 2013, House Bill 5 introduced new high school graduation requirements, transitioning from three graduation plans — Minimum, Recommended, and Distinguished — to the Foundation High School Program (House Bill 5, 2013). The new program went into effect starting with ninth-grade students in the 2014-2015 school year. Under the Foundation program, all high school students must complete a minimum of 22 credits in order to graduate.

The new graduation requirements also introduced academic endorsements, which are intended to improve college and career readiness by providing "students with in-depth knowledge of a subject area" (Texas Education [TEA], 2019, p. 6; additional information is provided on page 4 of this brief). To earn an endorsement, students must complete an additional four credits, thereby graduating with 26 credits total. All incoming high school freshmen in the state of Texas are required to select an endorsement (TEA, 2014). However, students can opt out of the endorsement system and only earn the minimum credits required by the Foundation program after their sophomore year if they have signed permission from their parent(s).

Distinguished Level of Achievement

Completing an endorsement is required to earn the Distinguished Level of Achievement, a distinction students can earn upon high school graduation. Aside from the endorsement, to earn the Distinguished Level of Achievement, students must complete four credits in science and four credits in math (including algebra II). The Distinguished distinction is important because students must earn it to become eligible for admission to a Texas public college under the Top 10 percent law, as well as receive state-distributed financial aid (Texas Education Agency, 2019; Uniform Admission Policy, 2003).

Performance Acknowledgements

House Bill 5 also introduced Performance Acknowledgements, which are distinctions students can earn upon graduation in recognition of outstanding academic performance in specific areas (House Bill 5, 2013). Students can earn up to five performance acknowledgements, which will be listed on their transcript and diploma. Acknowledgements are awarded for dual-credit course performance, bilingualism or biliteracy, high scores on standardized tests (Preliminary SAT, ACT Aspire, SAT, ACT), high scores on Advanced Placement (AP) or International Baccalaureate (IB) exams, and completing a business or industry certification or license.

Comparison of State and HISD Graduation Plans

School districts have freedom to customize their high school graduation requirements, as long as they follow the basic requirements outlined by the state in House Bill 5. For example, the Houston Independent School District (HISD) requires all students to take algebra II (HISD, 2018), whereas Texas law does not. In other school districts that do not require algebra II, students can graduate under the Foundation program with an endorsement but not earn the Distinguished Level of Achievement. In contrast, because HISD requires algebra II, all students who complete an endorsement will also fulfill the requirements for the Distinguished Level of Achievement. (See Table 1 for a side-by-side comparison of the Foundation program, with and without endorsements, for the state and HISD.)

Table 1: Graduation Plan Comparison (differences across plans are noted in red)

	State Foundation Program		HISD Foundation Program		State Foundation + Endorsement		HISD Foundation + Endorsement	
SUBJECT	CREDITS	REQUIRED COURSES	CREDITS	REQUIRED COURSES	CREDITS	REQUIRED COURSES	CREDITS	REQUIRED COURSES
English	4	English I, English II, English III	4	English I, English II, English III	4	English I, English II, English III	4	English I, English II, English III
Math	3	Algebra I, Geometry	3	Algebra I, Geometry, Algebra II	4	Algebra I, Geometry	4	Algebra I, Geometry, Algebra II
Science	3	Biology	3	Biology	4	Biology	4	Biology
History	2	Choice between World History or World Geography, US History	3	World History, World Geography, US History	2	Choice between World History or World Geography, US History	3	World History, World Geography, US History
U.S. Government	0.5		0.5		0.5		0.5	
Economics	0.5		0.5		0.5		0.5	
Health	not required		0.5		not required		0.5	
P.E.	1		1		1		1	
Second Language	2		2		2		2	
Fine Arts	1		1		1		1	
Electives	5		3.5		7		5.5	
TOTAL CREDITS	22		22		26		26	

Note: The courses listed are those that state or district policy specifically requires students to complete in order to graduate.
Source: HISD, 2018.

Types of Endorsements and Paths

TEA describes endorsements as "a related series of courses that [were] grouped together by interest or skill set" which "provide students with in-depth knowledge of a subject area" (TEA, 2019, p. 6). House Bill 5 outlines five endorsement options: arts and humanities, business and industry, public services, STEM, and multi-disciplinary. Texas high schools are required to offer at least one endorsement option to students; if only one is offered, it must be the multi-disciplinary endorsement (House Bill 5, 2013). Moreover, there are multiple course sequences, or paths, students can follow to earn their endorsements.

Table 2: Endorsements and Related Curricular Paths Outlined in House Bill 5

Endorsement	Paths
ARTS AND HUMANITIES	Social Studies, Single Foreign Language, Double Foreign Language, American Sign Language, Fine Arts, English Language Arts
BUSINESS AND INDUSTRY	Career and Technical Education, English Language Arts Electives, Other TEA-Designated Business and Industry Sequence, Interdisciplinary
PUBLIC SERVICES	Career and Technical Education, Junior Reserve Officers' Training Corps, Other TEA-Designated Public Services Sequence
STEM	Career and Technical Education, Mathematics, Science, Other TEA-Designated STEM Sequence, Interdisciplinary
MULTI-DISCIPLINARY	Advanced Coursework, 4 Credits in the 4 Core Subject Areas, AP/IB/Dual Credit

Source: House Bill 5, 2013; HISD, n.d.

STEM Endorsement

According to HISD's 2014 "Plan Your Path" document, the first academic year House Bill 5 was in effect, the STEM endorsement was offered in 43 of the 47 HISD high schools (HISD, 2014). The district offered all STEM paths outlined in House Bill 5, except cybersecurity. However, the availability of endorsement paths varied by school. For example, only five high schools in the district offered the computer science path for the STEM endorsement. (Note: In summer 2020, TEA consolidated endorsements and no longer offers the cybersecurity or computer science STEM paths [House Bill 5, 2013].)

The STEM endorsement, as outlined in Texas law, differs from the other endorsement options because it has more rigid requirements for science and math course credits (House Bill 5, 2013). Moreover, in HISD, where all students on the Foundation with endorsement program are required to take algebra II (HISD, 2018), the science requirements of the STEM endorsement set it apart. The STEM endorsement mandates students complete biology, chemistry, and either physics or principles of technology courses. While all students pursuing the Foundation with endorsement program must graduate with four credits in science, only biology is specifically required for non-STEM endorsements, even among those seeking the Distinguished Level of Achievement.

Differences in course requirements across endorsements, regardless of Distinguished Level of Achievement, may matter for students interested in attending selective colleges because a number of state colleges recommend or require students complete chemistry and physics courses for admissions. Thus, STEM may be the endorsement most closely aligned with the recommended or required course sequences of selective Texas public and private colleges. Although the multi-disciplinary endorsement comes close to meeting these course recommendations or requirements, it only specifies that students take either chemistry or physics. The remaining three endorsements do not outline specific guidelines regarding science and math courses, leaving it up to students to align their course-taking to colleges' recommendations or requirements.

College Admissions Requirements

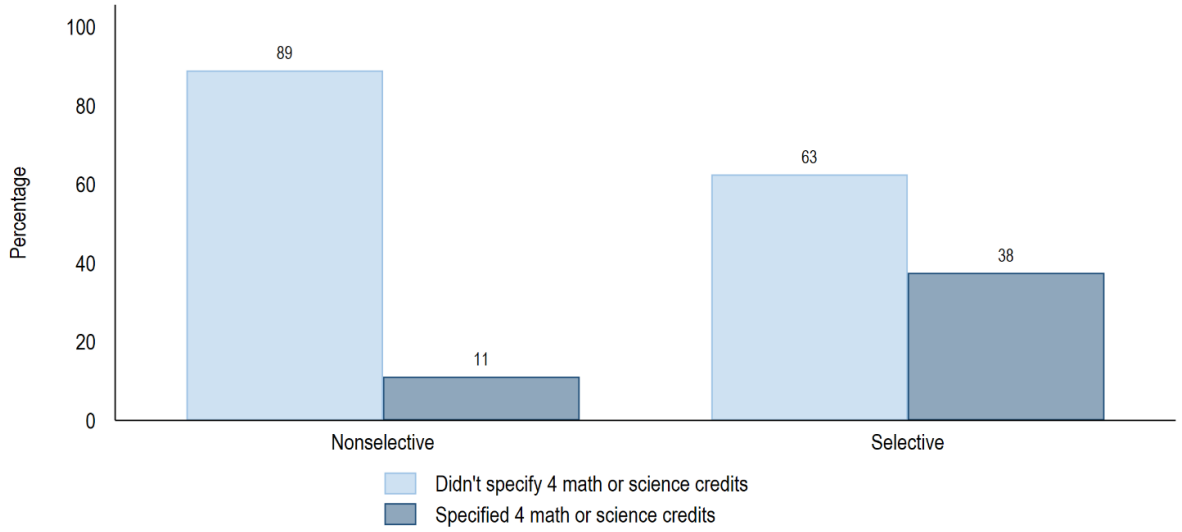
House Bill 5 and the distinct requirements of the STEM endorsement are important to understand when considering college admissions. For example, it is possible the STEM endorsement's requirements are more aligned to the requirements of selective four-year colleges and universities. If this is the case, then students choosing STEM may have a clearer path to selective-college entry. In contrast, students choosing endorsements less aligned to the requirements of these institutions, such as arts and humanities, may need to exceed their endorsement's requirements to gain entry to selective institutions. Given the limited information students and parents have about the endorsement system, as well as the challenges guidance counselors face providing information to and advising people about the system (Bojorquez & Bahena, 2018), the disconnect between an endorsement's requirements and the requirements for college entry may be troubling. Without clear information early on, students and parents may choose an endorsement that makes the path to college more challenging or narrow.

Content Analysis

With this in mind, the research team examined the college admissions websites of 61 public and private four-year colleges and universities in the state of Texas.[2] For each institution, the research team recorded the number of math and science credits recommended or required, as well as what specific math and science courses were recommended or required. For the analysis, colleges and universities were classified as nonselective or selective by their degree of admissions competitiveness, such as median SAT or ACT scores.[3]

Among nonselective colleges, only 11 percent required or recommended four credits of math or science for college admissions. In contrast, 38 percent of selective colleges required or recommended four credits of math or science (Figure 1). Selective colleges appeared to have more rigorous math or science requirements or recommendations than nonselective colleges.[4] Of the endorsements available, STEM is the only one to require four credits of math and science for graduation.

Figure 1: Math & Science Credit Requirements/Recommendations, by College Selectivity



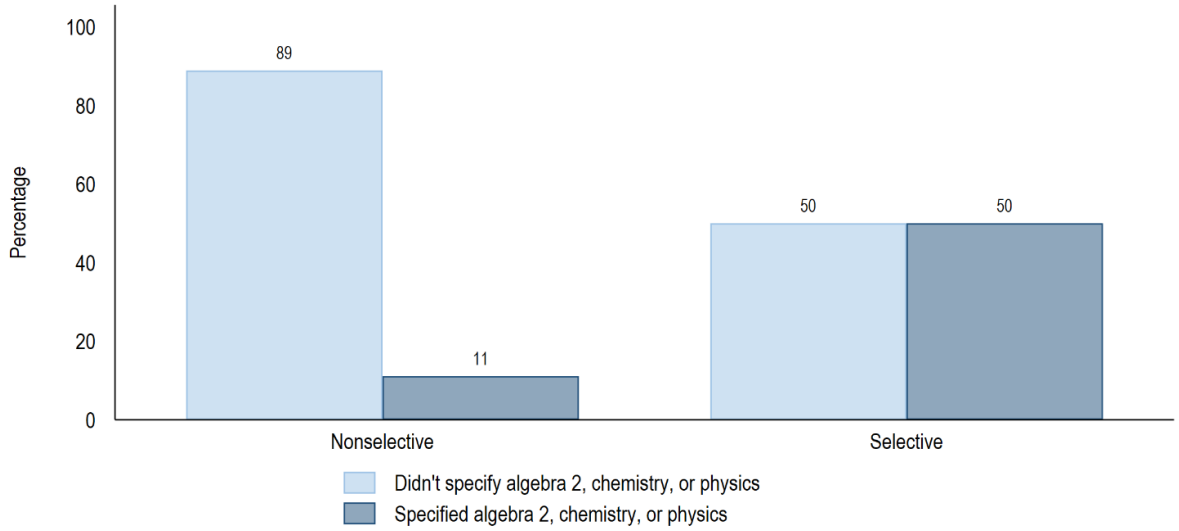
[2] The content analysis was limited to accredited public and private four-year colleges and universities in Texas that grant bachelor's degrees and admit freshmen. The sample was drawn from *Barron's Profiles of American Colleges 2015*.

[3] The College Admissions Selector in *Barron's Profiles of American Colleges 2015* classified colleges and universities by the degree of admissions competitiveness. This measure was based on SAT/ACT scores, high school class rank, high school GPA, and the percent of applicants admitted. There were six categories: Most Competitive, Highly Competitive, Very Competitive, Competitive, Less Competitive, and Noncompetitive. For the analysis, the nonselective category included Competitive, Less Competitive, and Noncompetitive institutions, whereas the selective category included Most Competitive, Highly Competitive, and Very Competitive institutions.

[4] A chi-square test shows these differences are statistically significant: $\chi^2(1) = 5.56, p < 0.05$.

Eleven percent of nonselective colleges required or recommended students complete algebra II, chemistry or physics during high school (Figure 2). In contrast, 50 percent of selective colleges required or recommended these courses. Aside from recommending or requiring more math and science credits, selective colleges were more likely to specify more advanced math or science courses than nonselective colleges.[5] STEM is the only endorsement that requires all these courses.[6]

Figure 2: Math & Science Course Requirement/Recommendations, by College Selectivity



Conclusion

The new high school graduation requirements outlined by House Bill 5 provide students opportunities to specialize in a specific area aligned with their career or academic interests. Although the endorsement system may provide students who choose to enter the workforce after high school with technical training and job opportunities, the different credit and course requirements of endorsements may lead to distinct paths for college-bound students. Notably, the STEM endorsement, with its more rigorous math and science requirements, is most aligned with selective four-year college entry. While students pursuing non-STEM endorsements can certainly attend selective colleges, they will need to exceed the requirements of their endorsement to meet admissions requirements or recommendations. This information may not be readily available or relevant to students and parents during the endorsement-choice process, especially since endorsements are chosen three to four years before applying to college. Moreover, guidance counselors may lack capacity to provide this detailed information to students and families so far in advance.

Recommendations

HISD has minimized differences between endorsements by requiring all students to complete algebra II and four credits of science and math; other districts in the state ought to follow suit. More importantly, schools and districts should identify creative strategies to reach out to students and parents to share information about the differences between endorsements. It is unclear, for instance, how guidance counselors discuss endorsements, specifically how the requirements may lead to different career and postsecondary paths, such as nonselective or selective college admission. Although eighth-grade students may not be thinking about college admissions, the science and math credits and courses required (or not required) are a key part of the endorsement system and affect students' long-term options. Guidance counselors should be aware of these implications and provide students and parents information as early as possible on how endorsements may tie to college admissions.

[5] A chi-square test shows these differences are statistically significant: $\chi^2(1) = 10.64, p < 0.01$.

[6] As mentioned earlier, multi-disciplinary requires chemistry or physics and, in HISD, all students must complete algebra II.

References

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