

## The Utah State Board of Regents' Recommended High School Curriculum

### *A Foundation for College Success*

#### Background

This issue brief explains the research and rationale behind the college preparatory curriculum recommended for Utah high school students by the State Board of Regents. With one minor change, this curriculum was jointly agreed upon as the recommended basic college preparatory high school pathway by both the Board of Regents and the Utah State Board of Education in 2016 and has been the basic curriculum required for the statewide Regents' Scholarship since its inception in 2008.

In 2017, the Utah State Legislature made changes to the Regents' Scholarship program, to take effect with the graduating high school class of 2019. Rather than outlining high school curriculum requirements in statute, as had been done in 2008, the new law tasked the State Board of Regents and the Office of the Commissioner of Higher Education with determining the scholarship eligibility requirements. The law did specify that those requirements should include minimum standards of academic performance and a core curriculum that would motivate students beyond basic state high school graduation requirements. Most of the original Regents' Scholarship curriculum requirements have been retained, but with some modifications that should make the scholarship easier for students to navigate.

Regardless of whether high school students plan to pursue the Regents' Scholarship, the Board of Regents encourages them to follow this curriculum as much as possible to prepare themselves for college.

#### College Readiness Standards

The State Board of Regents and the Utah System of Higher Education define college readiness as the ability to successfully complete credit-bearing, college-level coursework in an associate or baccalaureate degree program without remediation. Meeting high school graduation requirements is not necessarily the same as being completely college ready, nor does being admitted to a college or university necessarily indicate that a student is prepared for college-level work in all courses. All but two institutions in the Utah System of Higher Education are open access schools, meaning that students are fully eligible to enroll in college whether they are academically prepared or not, as long as they have a high school diploma or the equivalent. This open-access mission is important to allow as many interested Utahns as possible the chance to earn a college degree, but the reality is that the majority of new college students in the state have to enroll in some form of remediation before they are prepared to take credit-bearing classes. For example, 41% of Utah high school students taking the ACT in 2017 had test scores indicating they were unprepared for college English and 65% were unprepared in math.<sup>1</sup> Not only does being unprepared for college-level work cost students extra time and tuition money for developmental courses, but being unable to begin college-level work immediately upon enrollment is also one of the biggest obstacles to associate and baccalaureate degree completion.<sup>2</sup>

<sup>1</sup> See Curtin, J. and Hartley, J. (2017). Developmental Education in Utah. Issue Brief 2017-6. Utah System of Higher Education. <https://higheredutah.org/wp-content/uploads/2017/08/2017-6-Developmental-Education-in-Utah-Joe-Curtin.pdf>

<sup>2</sup> *Ibid.*

The Utah System of Higher Education and the State Board of Regents use the Recommended High School Curriculum as a means of communicating to students and to secondary schools what it truly means to be “college ready.” These recommendations encourage students to push themselves beyond minimal high school graduation requirements to select classes that have been demonstrated to provide a foundation for college; the Regents’ Scholarship provides them with a financial incentive for doing so.

There were three criteria that courses had to meet to become part of the Regents’ Recommended Curriculum and to be included in the scholarship’s requirements: 1) There had to be substantial research indicating that the courses increased students’ likelihood of earning grades of C or higher in related college courses; 2) there had to be a demonstrated correlation between the courses and the ACT benchmark scores used to place students into college classes; and 3) the courses had to align with the more demanding admissions requirements of highly selective institutions, in order to prepare students for admissions at any institution in Utah and at elite institutions across the country.

The Regents’ Recommended Curriculum is 4 credits of English ;4 credits of mathematics (at least 1 of which is pre-calculus or higher); 1 credit each of lab-based biology, chemistry, and physics; 2 credits of a world language; and 3 credits of social science. (Earlier versions of the Regents’ Scholarship required 3.5 credits of social science.)



## The research behind the Recommended Curriculum

National research and Utah-specific data indicate that college readiness depends on taking a foundational set of academically challenging courses in high school and on demonstrating proficiency within those courses. Multiple research studies have determined that a curriculum comprised of English, mathematics, the sciences, the social sciences, and a world language helps students develop critical analytic skills and the ability to understand and utilize data, prepares students for standardized exams, and provides the preliminary skills essential to many general education programs and academic disciplines in college.

For example, in two longitudinal studies spanning a period of eighteen years, Clifford Adelman examined students' high school transcripts and their subsequent college performance on behalf of the U.S. Department of Education. He found that the academic intensity of a student's high school course of study predicted the ability to complete a bachelor's degree better than their high school grade point average, test scores, or class ranking.<sup>3</sup> He identified a very specific curriculum, one almost identical to the Regents' Recommended Curriculum, as providing an appropriate level of "academic intensity." Other researchers and organizations from the National Center for Educational Statistics, the American Diploma Project, the Pew Charitable Trust, and the Association of American Universities have made very similar recommendations.<sup>4</sup> College readiness initiatives in multiple other states, often called "State Scholars" programs, also tend to agree on the same basic high school college preparatory curriculum, including the states of Arizona, Arkansas, Colorado, Connecticut, Indiana, Kentucky, Louisiana, Maryland, Massachusetts, Michigan, Mississippi, Nebraska, New Jersey, New Mexico, North Carolina, Oklahoma, Rhode Island, Virginia, Washington, and West Virginia.<sup>5</sup> The recommendations from those research studies and from state curriculum initiatives are summarized in the green columns in the chart at the end of this document.

### *Research on ACT Performance:*

Utah does not require exit exams in specific high school courses, as some other states do, so comparing the rigor of classes from one high school to the next is difficult. However, the state does pay for all high school juniors to take the ACT, a standardized test used for college admissions at all Utah Institutions of higher education. The ACT is also used to some degree as a placement tool for math, English, and science classes at all Utah institutions of higher education. Consequently, the Regents' Recommended Curriculum is also based in research on how well specific high school curricular choices correlate with student performance on standardized exams and later in college courses.

The ACT identifies college readiness "benchmark" scores in four subject areas—English, Reading, Math, and Science—based on those scores' ability to predict a 75% or greater chance of earning at least a C in related college courses. Those scores are also compiled into a composite score with a possible high of 36 points; a 22 is the minimal composite score a student could receive while meeting the benchmark score in each of the subject tests. ACT data for the Utah high school class of 2017 and for several years previously show a strong correlation between particular high school course choices and students' ability to hit those benchmark scores. Utah high school juniors and seniors who took four English credits, three credits each of math and social studies, and the specific 3-credit science combination of biology, chemistry, and physics earned 4.2 points higher on their composite ACT scores (with an average composite score of 22.40) than students who did not follow that same curriculum (with an average score of 18.2).<sup>6</sup> Curriculum recommendations from the ACT data are indicated in yellow on the chart at

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<sup>3</sup> Adelman, C. (2006). *The Toolbox Revisited: Paths to Degree Completion from High School through College*. Washington, D.C.: U.S. Department of Education. [www.ed.gov/rschstat/research/pubs/toolboxrevisit/index.html](http://www.ed.gov/rschstat/research/pubs/toolboxrevisit/index.html); and Adelman, C. (1999). *Answers in the Toolbox*. Washington, D.C.: U.S. Department of Education.

<sup>4</sup> See, for example, Horn, L., L. Kojaku, and C. Dennis Carroll (2001). *High School Academic Curriculum and the Persistence Path through College*. Washington, D.C.: National Center for Education Statistics. [https://nces.ed.gov/das/epubs/pdf/2001163\\_es.pdf](https://nces.ed.gov/das/epubs/pdf/2001163_es.pdf); Conley, D. (2005). *College Knowledge: What It Really Takes for Students to Succeed and What We Can Do to Help Them*. San Francisco, the State of Oregon/Oregon State Board of Higher Education/University of Oregon and Jossey-Bass Publishing; Spence, D. (2009). "Building State College Readiness Initiatives." In *States, Schools, And Colleges: Policies to Improve Student Readiness for College and Strengthen Coordination Between Schools and Colleges*. National Center Report #09-2. Washington, D.C.; and The National Center for Public Policy and Higher Education. [http://www.highereducation.org/reports/ssc/ssc\\_Cha\\_3.pdf](http://www.highereducation.org/reports/ssc/ssc_Cha_3.pdf); Center for Public Education. *Is High School Tough Enough?* <http://www.centerforpubliceducation.org/Main-Menu/Instruction/Is-high-school-tough-enough-At-a-glance/Is-high-school-tough-enough-Full-report.html#sthash.9fVPjVna.dpuf>

<sup>5</sup> U.S. Department of Education. *State Scholars Initiatives*. OVAW Fact Sheet Series. <https://www2.ed.gov/rschstat/eval/sectech/factsheet/ssi.html>.

<sup>6</sup> The ACT Profile Report: State Graduating Class 2017 Utah. ACT, Inc. Table 3.5; see also ACT (2007). *Rigor at Risk: Reaffirming Quality in the High School Core Curriculum*, [https://forms.act.org/research/policymakers/pdf/rigor\\_report.pdf](https://forms.act.org/research/policymakers/pdf/rigor_report.pdf)

the end of this document. Specific class recommendations coming from ACT data are discussed in more detail in the paragraphs that follow.

### *Elite admissions standards*

The Regents' Recommended Curriculum also encompasses the high school curriculum admissions requirements at the University of Utah and Utah State University, the two Utah public institutions of higher education that have selective admissions standards. It also fits the basic academic preparatory requirements at the two major private schools in the state, Westminster College and Brigham Young University, and at highly selective out-of-state institutions like Harvard, Yale, Columbia, Berkeley, Princeton, and Stanford. Following the Regents' Recommended Curriculum is a foundational step to help students meet selective admissions standards and have the ability to attend the university of their choice. Admissions requirements at the University of Utah, Utah State University, and Brigham Young University are shown in the blue and red columns of the chart, below, and will also be discussed in more detail by academic discipline.

### Subject Matter Specifics within the Regents' Scholarship Requirements:

#### *Higher-level mathematics*

Parts of the Regents' Scholarship requirements go beyond simple credit requirements to specify particular course choices within those credits. These requirements are also based in research. For example, Adelman's research recommends 3.75 credits of mathematics; his research revealed that students who took a math course higher than Algebra 2 doubled their odds of completing a bachelor's degree, with their chances of success growing higher for each level of math completed through pre-calculus, trigonometry, calculus, and beyond.<sup>7</sup> In terms of subsequent career success, Carnevale and Desrocher also found that students who completed Algebra 2 or beyond in high school were two- to almost three-times more likely to become "well paid" or "highly paid" professionals later in life than students who had not.<sup>8</sup>

ACT data show similar benefits for students who enrolled beyond the three basic mathematics courses required for high school graduation in Utah: only around 16% of Utah students who complete the minimal three years of math have test results indicating they are ready for college-level algebra, while 62% of students who take four years of high school math test as college ready.<sup>9</sup> In other words, a fourth year of math significantly increases a student's performance on the ACT and their preparation for college-level mathematics. However, Utah's mandated high school curriculum requires only three years of math of all students, usually offered through the Integrated Secondary Math 1, 2, and 3 course series. Secondary Math 1, 2, and 3 get students through the traditional Algebra 1-Geometry-Algebra 2 sequence and statistics as well. Since Utah's high school graduation requirement does not mandate a fourth credit beyond this core, students meeting the minimal high school graduation requirements will not progress beyond Algebra 2 and will therefore fall short of the math skills necessary for college readiness. Consequently, the Regents' Recommended Curriculum encourages 4 credits of mathematics and specifies that at least one credit should be higher than Math 3. A fourth mathematics credit is required for the Regents' Scholarship and may be fulfilled through a high school pre-calculus course or through a college-level course such as concurrent enrollment math or statistics, Advanced Placement (AP) math or statistics, or certain International Baccalaureate mathematics courses.

<sup>7</sup> Adelman (1999) pp. 16-18; see also Adelman, C. (2006).

<sup>8</sup> Carnevale, A. P., & Desrochers, D. M. (2003) *Standards for What? The Economic Roots of K-16 Reform*. Princeton, NJ: Educational Testing Service.

<sup>9</sup> ACT (2007).

To provide students with strong options for their recommended fourth math credit, institutions within the Utah System of Higher Education have agreed that any high school student in the state who has earned a grade of C or higher in Secondary Math 1, 2, or 3 is eligible to take certain concurrent enrollment mathematics courses in their high school that will fulfill the Quantitative Literacy (QL) requirement for college graduation. If students complete a concurrent enrollment math course they will go beyond making themselves college ready and will actually fulfill their college general education math requirement while still in high school. And since concurrent enrollment is subsidized by the state, students who participate will have substantially increased their odds of completing a bachelor's degree while saving money—concurrent enrollment courses cost only \$5 per credit rather than full college tuition.

### *Lab-based biology, chemistry, and physics*

Adelman's transcript studies identified biology, chemistry, and physics as the "core laboratory sciences" predicting college success. Students who took all three of those courses had what Adelman described as "sufficient momentum" toward college completion, while those who took 1.5 courses had only "modest momentum." Students who fell below the 3-credit science criteria or who took a combination of science courses other than biology, chemistry, and physics had "weak to no momentum."<sup>10</sup> The National Center for Educational Statistics also identified biology, chemistry, and physics as critical science components providing sufficient academic rigor to predict persistence toward a bachelor's degree.<sup>11</sup> Similarly, the Association of American Universities and the Pew Charitable Trust named biology, chemistry, and physics as fundamental scientific concepts preparing students to study at the college level and rendering students "capable of integrating scientific methods and contextual understanding, critical thinking, and hands-on skills."<sup>12</sup>

Similarly, ACT data specific to Utah show that students who took biology, chemistry, and physics scored up to 4.3 points higher on the ACT Science exam (with an average science score of 24.1) than did students who took three or more years of other combinations of science courses. In terms of composite scores, the biology-chemistry-physics combination resulted in an average of 22.3 compared to 19.8 for students who took other science combinations, and students with the biology-chemistry-physics combination even outscored students who took more than 3 credits in other science courses.<sup>13</sup>

The biology-chemistry-physics combination is also important for meeting admissions requirements at some elite universities. The University of Utah requires three years of science, two of which must be biology/human biology, chemistry, or physics,<sup>14</sup> while Utah State University specifies all three.<sup>15</sup> Brigham Young University also recommends three years of lab-based science but does not specify which sciences.<sup>16</sup> Princeton requires high school physics and chemistry, and the University of California system requires three years of integrated science for admissions (their integrated science being biology, chemistry, physics), two years of which must be lab-based.<sup>17</sup>

Earth sciences and computer science did not appear as significant contributors to ACT scores. They are not specified as part of the admissions requirements for the selective schools in Utah, nor is computer science a required component of general education tracks at Utah institutions of higher education, as are life sciences and

<sup>10</sup> Adelman 2006.

<sup>11</sup> Horn, Kojaku, and Carroll (2001) pp. iii, 4

<sup>12</sup> Association of American Universities and the Pew Charitable Trusts. 2003. Standards for Success: Understanding University Success. University of Oregon. <http://webhost.bridgew.edu/rsylvester/frosh.pdf>

<sup>13</sup> ACT (2017). Table 3.8.

<sup>14</sup> <http://admissions.utah.edu/apply/undergraduate/high-school-core-requirements.php>

<sup>15</sup> <http://catalog.usu.edu/content.php?catoid=12&navoid=3795#exploratory-program>

<sup>16</sup> <https://admissions.byu.edu/acceptance-criteria>;

<sup>17</sup> <http://admission.universityofcalifornia.edu/freshman/requirements/index.html>;

physics. Therefore, these courses were not specifically identified as critical components of students' preparation for college, as are biology, chemistry, and physics, although they are certainly useful to students with interest in those subjects.

## World Language

Research also indicates that two or more years of world language study is an important part of a college-preparatory curriculum. All of the above-cited national research included world language as part of the definition of an "academically intensive" curriculum. Facility with a foreign language can also improve career and professional opportunities.<sup>18</sup> Several researchers have found a correlation between second language proficiency and student performance in a variety of disciplines within the general education programs at colleges and universities, such as history, English, writing, and art.<sup>19</sup>

In addition, foreign language study improves performance on standardized tests. Although the ACT does not track the impact of second language study, the College Board, which oversees the SAT, does. The College Board's Admissions Testing Program has found that students who completed at least two years of foreign language study in high school saw a 13% increase in SAT scores. Students who had taken 4-5 years of foreign language had higher SAT verbal scores than students with any other 4-year course of study.<sup>20</sup>

Not surprisingly, the study of a world language is also a common part of the admissions requirement at many elite institutions. The University of Utah, Brigham Young University, and Utah State University recommend two academic-year levels of a foreign language for admissions, as does the University of California system. Yale University recommends four high school years of foreign language.<sup>21</sup> At least 14 state university systems in the United States also require high school foreign language study for admissions.<sup>22</sup> In fact, a recent report by the Education Commission of the States found that the lack of mandatory foreign language study in high school was the biggest misalignment between Utah's high school graduation standards and the admissions standards of the state's research universities.<sup>23</sup>

A note about Utah's dual language immersion students: the Regents' Scholarship application (and most university admissions applications) only consider course taking in grades 9-12 (but not grades 7-8). Students who have studied a foreign language in a dual immersion program from elementary school through eighth grade and who do not wish to take additional language courses in high school may want to consider taking competency-based exams that post a credit equivalent for world language study on their high school transcripts (for example, through the Statewide Online Education Program). This would allow them to still meet college admissions standards and the Regents' Scholarship's requirements without having to take additional course work in high school. However, it would be even more advantageous for dual immersion students to take the opportunity to earn college credit for

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<sup>18</sup> Conley 16, 19.

<sup>19</sup> See a summary of research on foreign language recommendations in Nevada State Board of Regents (2010). Nevada College Readiness Standards: Foreign Language Component. Academic, Research and Student Affairs, <http://system.nevada.edu/tasks/sites/Nshe/assets/File/BoardOfRegents/Agendas/10/jun/Academic--/ARSA-5d.pdf>

<sup>20</sup> Thomas C. Cooper. Foreign Language Study and SAT-Verbal Scores. *The Modern Language Journal*. December 1987.

<http://onlinelibrary.wiley.com/doi/10.1111/j.1540-4781.1987.tb00376.x/full>; Nevada College Readiness Standards: Foreign Language Component, 2010, Academic, Research and Student Affairs, <http://system.nevada.edu/tasks/sites/Nshe/assets/File/BoardOfRegents/Agendas/10/jun/Academic--/ARSA-5d.pdf>

<sup>21</sup> <https://admissions.yale.edu/advice-selecting-high-school-courses>

<sup>22</sup> See a summary of research on foreign language recommendations in Nevada State Board of Regents (2010). Nevada College Readiness Standards: Foreign Language Component. Academic, Research and Student Affairs, <http://system.nevada.edu/tasks/sites/Nshe/assets/File/BoardOfRegents/Agendas/10/jun/Academic--/ARSA-5d.pdf>

<sup>23</sup> Education Commission of the States (2014). Blueprint for College Readiness: High School Policies to Increase College Readiness (a 50-State Policy Analysis). <http://www.ecs.org/docs/ECSBlueprint.pdf>

all of their world language study through the concurrent enrollment program, AP exams, or university-based dual language bridge programs while in high school. Students who opt for these college-level courses will be able to record their linguistic abilities on their college transcripts, which will help not only with graduation requirements but are often viewed by future employers as well.

### *Other disciplines*

In addition to these specific course recommendations, meeting the basic high school graduation requirements is also an important part of the Regents' Curriculum and of scholarship eligibility, as is a selection of electives of interest to the individual student. To avoid becoming overly prescriptive, these curriculum recommendations and the Regents' Scholarship requirements specify only the general, foundational set of courses that research indicates will prepare students for college. To interpret them as devaluing any other discipline is a misinterpretation of the intent of the curriculum guidelines. There are many other high school subjects that are extremely beneficial to students that are not required for scholarship eligibility.

### **Changes to the Regents' Scholarship beginning with the Class of 2019**

The Regents' Scholarship requirements that will go into effect in 2019 are very close to the 2008 version of the scholarship. The new eligibility requirements, however, streamline the administrative evaluation of courses and make minor adjustments to some subject-specific tracks. The 2008 law creating the scholarship, for example, required that students take "four years of progressive math" and disqualified them if they skipped any part of the Secondary Math 1, 2, or 3 sequence, took classes out of order, or took classes in a non-progressive fashion. Under the new requirements, students must still earn 4 credits of math, from a list of allowable courses, one of which must be pre-calculus or higher; there will be no examination of "progression," the order in which the courses were completed, or whether students skipped part of the required high school graduation sequence. That same change to the "progression" rule applies to world language courses. (Note that students who want to take concurrent enrollment math classes do still need to complete the Math 1, 2, and 3 sequence and earn a grade of C or higher in those courses and Math 1,2, and 3 are high school graduation requirements.)

The new version of the scholarship also requires only 3 credits of social science, while the 2008 version required 3.5 credits. The national research on social science credits varied between recommending 3-4 credits, so this part of scholarship eligibility was simplified.

### *Elimination of "base" and "exemplary" distinctions*

The previous form of the Regents' Scholarship provided two levels of awards: 1) a base scholarship for students with a high school GPA of 3.0 and any ACT score, and 2) an exemplary award for a high school GPA of 3.5 or higher and an ACT score of 26 or above. The new form of the scholarship has a single GPA (3.3) and ACT requirement (22). Those new requirements were also based in research.

The new scholarship requirement of at least a 22 composite score on the ACT reflects the minimum composite score of a student hitting benchmarks in all four test subject areas. Aligning scholarship eligibility with standardized college readiness benchmarks will help students gauge their level of preparation for college and encourage them to retake the exam if necessary (and thus aim for test scores that will prevent them from being placed into remedial courses once they arrive on college campuses).

National studies have found that a high school grade point average can be an even stronger predictor of student success in college courses than standardized testing (and almost as strong a predictor as the rigor of the curriculum the student selected).<sup>24</sup> Analyses conducted by the Utah System of Higher Education comparing grade point averages from Utah high schools and subsequent student performance at Utah public colleges and universities led the scholarship curriculum committee to identify a 3.3 high school GPA as a minimal target for scholarship eligibility.

### *A FAFSA Application:*

The 2017 law requires students to complete the Free Application for Federal Student Aid (FAFSA) as part of their scholarship eligibility, although students do not have to be Pell Eligible to receive the scholarship. Utah has the lowest rate of FAFSA completion in the United States, and Utah students leave an estimated \$36-45 million in federal money for college unclaimed every year simply because they did not complete an application.<sup>25</sup> This new scholarship requirement is intended to help students find and utilize all the funding available to them. All students who meet the scholarship's academic requirements will receive an award regardless of their eligibility for federal aid. Some students may receive additional funds based on their Estimated Family Contribution, as determined by the FAFSA application, and the gap in their ability to cover tuition, fees, and some other educational expenses at the Utah college or university they plan to attend. In the past, many Regents' Scholarship recipients received excess scholarship funds from their institution and cashed out their Regents' Scholarship after all of their expenses were met through other means, while other students had gaps in funding that made college attendance difficult. Colleges and universities will now be able to incorporate the Regents' Scholarship award into their institutional financial aid package for eligible students. The new program is meant to provide more efficient use of state tax funds to assist as many students as possible.

### *Educational 529 Savings Plan Contributions:*

Students who have contributed to a Utah Educational Savings Plan/My529 Account will receive a match of additional scholarship funds for each year of \$100 contributions deposited while they were age 14, 15, and 16, up to \$300 total.

### *Enrollment in a Utah institution:*

As has always been the case, students must enroll at an eligible Utah institution of higher education to receive scholarship funds. The scholarship cannot be used out of state.

## **Access**

The State Board of Regents carefully considered the impact of curriculum recommendations and scholarship requirements on students from disadvantaged backgrounds and from populations that have historically been underrepresented on college campuses. Numerous researchers have found that the benefits of a rigorous high

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<sup>24</sup> Heller, R. What Studies Say about College Readiness. EWA Research Brief. <http://www.ewa.org/sites/main/files/file-attachments/ewabrief-collegereadiness-revised2.pdf>

<sup>25</sup> Martinez, S. (2016). Utah's Low FAFSA Completion Rates: Why You Should Care. StepUp Utah/Utah System of Higher Education, <https://stepuputah.com/2016/02/utahs-low-fafsa-completion-rates-why-you-should-care/>; Utah System of Higher Education (2017); USHE (2017) FAFSA Completion in Utah up 39% over Last Year. <https://higheredutah.org/fafsa-completion-in-utah-up-39-over-last-year/>



school curriculum were significant for most students, but were much larger for “disadvantaged students and students attending disadvantaged schools”<sup>26</sup> and on Latinx<sup>27</sup> and African-American students.<sup>28</sup>

Consequently, researcher Laura Perna argues that college outreach programs should focus intensively on academic preparation because “the groups of students who continue to be underrepresented in higher education are also the groups that are least likely to be academically prepared.”<sup>29</sup> Often, this may be because students are automatically excluded from college preparatory programs through curricular tracking, purported ability grouping, or the characteristics and chronic underfunding of the schools they attend. This is especially the case for low-income, African-American, and Hispanic students across the United States. Nationwide, low-income students are 15% less likely to be minimally qualified for a four-year college upon high school graduation compared to their wealthier peers.<sup>30</sup> Perna argues that emphasizing the importance of rigorous academic preparation is “critical to addressing gaps in college enrollment.”<sup>31</sup>

Not only is a rigorous course load predictive of college success; enrollment in advanced high school coursework (e.g., advanced mathematics, biology, chemistry, foreign languages and advanced placement, honors, and concurrent enrollment courses) is the single best predictor of even enrolling in college in the first place.<sup>32</sup> Although need-based student aid programs are crucial in helping low-income students attend college, Perna argues that “only by focusing on ensuring high levels of academic preparation will college preparation programs effectively reduce the continued income and racial/ethnic group gaps in college enrollment and degree completion.”<sup>33</sup> Adelman found that completing an intensive high school curriculum can even overcome the effects of socioeconomic status on college completion rates.<sup>34</sup>

## Evaluating the Impact of the Regents' Scholarship Curriculum

The research cited above was based on national data sets. The benefits of the recommended curriculum have also been validated by nine years' of Utah-specific data on the performance of Regents' Scholarship recipients once they began attending public institutions of higher education within the state. Since its creation in 2008 through the high school graduating class of 2017, there have been 17,953 students who were awarded \$49.8 million dollars in Regents' Scholarship money after completing the required high school course of study. USHE completion data show that 75.3% of Regents' Scholarship recipients have graduated within 150% of time (i.e., six years for a bachelor's degree), the standard timeframe for completion reporting nationwide. Those students who had applied for the scholarship but had been denied for whatever reason (low grades, missing one or two required courses, or missing application deadlines) graduated from USHE institutions at a rate of 69.8%. By contrast with the scholarship recipients and scholarship applicants, only 35.4% of students from the same cohorts who did not apply for the scholarship graduated within six years. These data imply that the curriculum required for the scholarship contributed to students' persistence and college success.<sup>35</sup> Regents' Scholarship recipients also graduated on

<sup>26</sup> Long, M.C., D. Conger, and P. Iatarola (2012). “Effects of High School Course-taking on Secondary and Postsecondary Success.” *American Educational Research Journal* 49(2): 285-322; see also DesJardins, S.L. and Lindsay, N.K. (2008). Adding a statistical wrench to the ‘Toolbox.’ *Research in Higher Education* 49(2): 172-179.

<sup>27</sup> “Latinx” is a gender non-specific term for Latino/Latina.

<sup>28</sup> Adelman (1999), pp. 84-86.

<sup>29</sup> Perna, L. (2005). “The Key to College Access: Rigorous Academic Preparation”. In Tierney, W.G. et al, eds. *Preparing for College: Nine Elements of Effective Outreach*. *Frontiers in Education Series*. Albany, NY. SUNY Press, p. 114.

<sup>30</sup> Perna, p. 121.

<sup>31</sup> Perna, p. 120; see also; Struhl, B. and Vargas, J. (2012). “Taking College Courses in High School: A Strategy for College Readiness.” *Jobs for the Future*. [http://www.jff.org/sites/default/files/publications/TakingCollegeCourses\\_101712.pdf](http://www.jff.org/sites/default/files/publications/TakingCollegeCourses_101712.pdf)

<sup>32</sup> Perna, p. 130-1

<sup>33</sup> *Ibid*, 134

<sup>34</sup> 1999, pp. 23-24, 60

<sup>35</sup> Ma, D. (2016), *Regents' Scholarship Annual Report AY2016*. Tab 15.

average with a much higher college grade point average than other students, 3.6 vs. 2.5, also indicating that they were much better prepared than their peers for college work.<sup>36</sup>

In terms of the scholarship's central mission of communicating what a strong college preparatory curriculum looks like, note that when the scholarship was introduced in 2008, one of the primary complaints from students, parents, and secondary school administrators was that the required curriculum was not available at their local high school and some students were therefore ineligible to apply. Ten years later, that complaint has disappeared. Because of changes to the state's core high school curriculum and because of pressure on secondary schools to bring in the courses necessary to help local students attain scholarship eligibility, the Regents' Recommended Curriculum is now available statewide, either face-to-face, via concurrent enrollment, or through the Statewide Online Education Program (SOEP) established by the Utah Legislature in 2011. Although in some other states many low income or isolated school districts are unable to provide students with access to academically rigorous courses,<sup>37</sup> Utah's state curriculum, concurrent enrollment offerings, distance programs, and the incentive of Regents' Scholarship money have helped to ensure that students in all corners of the state can take higher level mathematics, science, and other subjects while in high school.

This communication of and access to an academically intensive curriculum is crucial if Utah is to achieve its educational and economic development goals. Researchers with the National Center for Educational Statistics found that completing an academically rigorous core high school curriculum, like the one outlined for the Regents' Scholarship, can correct for other factors that may limit a student's persistence toward a bachelor's degree, like low socioeconomic status, their high school's economic status, parents who did not attend college, and having to work while attending school.<sup>38</sup> Adelman similarly found that academic intensity in high school had an especially positive effect on college performance for African-American, Hispanic, and other students typically underrepresented in higher education.<sup>39</sup> Children from low-income families or from underrepresented populations are the most vulnerable to under-preparation for college. Students without family members who previously attended college may not understand what it takes to get admitted to or succeed in college, as may be the case for students who attend schools without adequate numbers of guidance counselors. These students are the most likely to opt out of college or to need remediation once they arrive.<sup>40</sup> The Regents' Scholarship curriculum is intended to help communicate to them that the preparation for college success—and some money to back it up—lie within their reach.

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<sup>36</sup> Ibid.

<sup>37</sup> For an overview of access to rigorous curricula in the states see Center for Public Education. "Is High School Tough Enough?" [http://www.centerforpubliceducation.org/Main-Menu/Instruction/Is-high-school-tough-enough-At-a-glance/Is-high-school-tough-enough-Full-report.html#\\_ftn3](http://www.centerforpubliceducation.org/Main-Menu/Instruction/Is-high-school-tough-enough-At-a-glance/Is-high-school-tough-enough-Full-report.html#_ftn3)

<sup>38</sup> Horn, Kojaku, and Carroll, p. x-xi.

<sup>39</sup> Adelman, C. (1999 and 2006).

<sup>40</sup> Conley, p. 10.

**Table: Curriculum Recommendations/Requirements**

	Adelman Dept of Ed <sup>41</sup>	Horn, Kojaku, Carroll/ National Center for Educationa l Statistics <sup>42</sup>	Conley/ EPIC <sup>43</sup>	Spence/Nation al Center for Public Policy and Higher Education <sup>44</sup>	14 states in the WICHE State Scholars Initiative and the Center for State Scholars <sup>45</sup>	ACT <sup>46</sup>	U admissions <sup>47</sup>	USU admissions <sup>48</sup>	BYU admissions <sup>49</sup>
English	3.75	4	4	4	4	4	4	4	4
Math	3.75 to pre-calc or higher	4 to at least pre-calc	4 Through Algebra II, Trig, Geometry, & Statistics	4 at least through Alg II	4-Mar	4	Algebra +2	4, with 1 beyond Math 3	4
Science	2.5/2 should be biology, chemistry, physics	3 biology, chemistry, physics	3 Lab- based Biology, Chemistry, Physics	4	3 biology, chemistry , physics	3 biology, chemistry , physics	3, 2 of which must be biology, chemistry, physics	3, biology, chem, physics	2-3 lab
Social Science	2	3	4	4	3.5	3	1 history, see other	3.5	2
World Language	2	3	To ACTFL intermediat e-low proficiency		2	Data not collected	2	2	2+
Other:	1+ Advanced Placement or Dual enrollment						4 years, from at least two of the following: history, English, mathematics beyond intermediate algebra, laboratory science, foreign language, social science, fine arts, technology and engineering education		

<sup>41</sup> Adelman, C. (2006) and Adelman, C. (1999).

<sup>42</sup> Horn, L., L. Kojaku, and C. Carroll (2001).

<sup>43</sup> Conley, D. (2005).

<sup>44</sup> Spence, D. (2009).

<sup>45</sup> U.S. Department of Education. State Scholars Initiatives. OVAW Fact Sheet Series.

<sup>46</sup> The ACT Profile Report: State Graduating Class 2017 Utah. ACT, Inc. Table 3.5;

<sup>47</sup> <http://admissions.utah.edu/apply/undergraduate/high-school-core-requirements.php>;

<sup>48</sup> <http://catalog.usu.edu/content.php?catoid=12&navoid=3795#exploratory-program>

<sup>49</sup> <https://admissions.byu.edu/acceptance-criteria>