BOARD OF REGENTS
BRIEFING PAPER

1. AGENDA ITEM TITLE: ***Handbook* Revision: Senate Bill 200 - Addition of Computer Science to High School Courses for Admissions and Eligibility for the Governor Guinn Millennium Scholarship**
MEETING DATE: September 7-8, 2017

2. BACKGROUND & POLICY CONTEXT OF ISSUE:

Existing Board policy includes high school course requirements for admission to an NSHE university and the state college (*Title 4, Chapter 16, Sections 3* and *27*) and for eligibility for the Governor Guinn Millennium Scholarship (*Title 4, Chapter 18, Section 9.15*), as required by NRS 396.930 (Eligibility requirements for Millennium Scholarship; duties and powers of Board of Regents). The 2017 Legislature passed Senate Bill 200 (Chapter 597, *Statutes of Nevada*) revising provisions relating to instruction in computer education and technology for the purpose of K-12 instruction, high school graduation requirements, university admissions and Millennium Scholarship eligibility. Two sections of S.B. 200 impact NSHE:

- **Admissions** –Section 6, which is effective on July 1, 2020, requires that if the Board of Regents adopts rules requiring a student to successfully complete courses in mathematics or science before being admitted to an NSHE institution, a student must be allowed to apply certain computer science courses towards admissions requirements in:
  (a) ***Science***, if the student successfully completed ***two units of credit in science***; or
  (b) ***Mathematics***, if the student successfully completed ***three units of credit in mathematics*** and successfully completed Algebra II.

  Analysis of Board Policy – Existing Board policy provides that for admission to the Nevada State College (NSC), a student must complete ***two units of natural science*** and ***three units of mathematics*** (*Title 4, Chapter 16, Section 27*). Thus, S.B. 200 does not impact existing Board policy for purpose of admission to NSC because a student must complete the minimum science (two units) and mathematics (three units) requirements before being able to apply the computer science credit.

  For university admissions, a student must complete ***three units of natural science*** and ***three units of mathematics*** (*Title 4, Chapter 16, Section 3*). Thus, S.B. 200 does not impact the mathematics requirement (three units), but a student must be allowed under S.B. 200 to apply a computer science credit toward the three natural science units required for admission.

- **Millennium Scholarship –** Section 7 of S.B. 200, which is effective on July 1, 2017, provides that if the Board of Regents adopts rules requiring successful completion of mathematics or science for eligibility for the Millennium Scholarship, a student who has successfully completed certain courses in computer science must be allowed to apply one credit in computer science toward those requirements. Unlike Section 6 of S.B. 200 governing admissions, a minimum number of course completions in science or mathematics are not specified for the Millennium Scholarship core curriculum substitution.

  Analysis of Board Policy – Existing Board policy includes core curriculum requirements in mathematics and science that a student must complete for eligibility for the Millennium Scholarship, and would need to be revised to comply with S.B. 200.

System staff recommends amending Board policy to comply with S.B. 200 by requiring that certain high school computer science courses qualify for one of the three units of science required for admission to an NSHE university (*Title 4, Chapter 16, Section 3*). In addition, amend Board policy to require that certain high school computer science courses qualify for one unit of mathematics or science under the high school core curriculum required for eligibility for the Millennium Scholarship (*Title 4, Chapter 18, Section 9.15*).

3. SPECIFIC ACTIONS BEING RECOMMENDED OR REQUESTED:

Amend Board policy to require that certain high school computer science courses qualify for one of the three units of science required for admission to an NSHE university, effective July 1, 2020 (*Title 4, Chapter 16, Sections 3* and *27*). In addition, require that certain high school computer science courses qualify for one unit of mathematics or science under the high school core curriculum required for eligibility for the Millennium Scholarship (*Title 4, Chapter 18, Section 9.15*). See the attached policy proposals.

4. IMPETUS (WHY NOW?):

The policy change is required pursuant to S.B. 200 passed by the 2017 Legislature.

5. BULLET POINTS TO SUPPORT REQUEST/RECOMMENDATION:

- The policy revision is required to comply with the provisions of S.B. 200, which according to testimony before the 2017 Legislature, is necessary to encourage and support students in pursuing education and careers in the growing, high-demand field of computer science.

6. POTENTIAL ARGUMENTS AGAINST THE REQUEST/RECOMMENDATION:

- The Nevada Legislature has not previously adopted laws governing admissions to NSHE institutions. The provisions of Section 6 of S.B. 200 imposing certain requirements for admissions are unprecedented and historically within the purview of the Board of Regents.
- Based on historical data (attached), requiring substitution of a computer science course for the mathematics or science high school course requirements will result in students entering NSHE institutions less prepared for the rigors of college coursework.
- Based on the historical data and the Board's role in establishing admissions standards, NSHE will seek to repeal Section 6 of S.B. 200 when the Legislature reconvenes in 2019.

7. ALTERNATIVE(S) TO WHAT IS BEING REQUESTED/RECOMMENDED:

None have been presented.

8. COMPLIANCE WITH BOARD POLICY:

❑ Consistent With Current Board Policy: Title #_____ Chapter #_____ Section #_____

X Amends Current Board Policy: *Title 4, Chapter 16, Section 3* and *Title 4, Chapter 18, Section 9.15*

❑ Amends Current Procedures & Guidelines Manual: Chapter #_____ Section #_____

❑ Other:_____

❑ Fiscal Impact: Yes_____ No__X___

Explain:_____

POLICY PROPOSAL
TITLE 4, CHAPTER 16, SECTION 3
High School Course Requirements for University Admission – SB 200 (2017)

EFFECTIVE JULY 1, 2020

Additions appear in ***boldface italics***; deletions are [~~stricken~~ and bracketed]

Section 3. High School Course Requirements for University Admission *(Effective July 1, 2020)*

The following minimum high school course admission requirements apply to freshman admission at a university, in addition to the specific admission requirements for those institutions that appear elsewhere in this Chapter:

High School Course(s)	Units
English: Emphasis on composition, rhetoric, and American, English and world literatures	4
Mathematics: Algebra I and higher level mathematics – higher level mathematics may include Algebra II, geometry, trigonometry, pre-calculus, calculus, probability and statistics and other advanced mathematics	3
Natural Science: (lab or simulation) including biology, chemistry or physics, with at least two years in a laboratory science	3*****
Social Science/Studies: Including world history and geography, U.S. history, economics, government, or law	3
Total:	13

****A student who has successfully completed one or more computer science courses described in Section 4 of S.B. 200 [1] (Chapter 597, Statutes of Nevada 2017) can apply not more than one unit of credit received for such a course to the units of natural science required for university admission.***

The universities may evaluate high school transcripts to determine if the course content or, in lieu of course content, the credit by performance on an examination pursuant to *Nevada Revised Statutes* 389.171 and *Nevada Administrative Code* 389.670 appropriately meets the course requirements under this section.

[1] ***Section 4 of S.B. 200 describes the following computer science courses: (a) An advanced placement computer science course; (b) A computer science course that is offered through a program of career and technical education; or (c) A computer science course that is offered by a community college or university which has been approved pursuant to NRS 389.160.***

POLICY PROPOSAL
TITLE 4, CHAPTER 18, SECTION 9.15
Millennium Scholarship – Computer Science and High School Core Curriculum Requirements – SB 200 (2017)

Additions appear in ***boldface italics***; deletions are [~~stricken~~ and bracketed]

9.15 Core Curriculum Requirements

9.15.1 The Board recognizes the importance of a rigorous high school curriculum in adequately preparing students to succeed in college-level courses. Therefore, except as otherwise ***provided*** in this section for recipients of an advanced diploma, a student who graduates from a Nevada high school in Spring 2009 and thereafter must successfully complete the following curriculum in high school to be eligible for the Millennium Scholarship:

High School Course	**Units**
English	4
Math (including Algebra II or higher)	4
Science	3
Social Studies and History	3
TOTAL	**14**

a. Nevada high school students who receive an advanced diploma (as defined under *Nevada Administrative Code* 389.663) in Spring 2017 and thereafter shall be deemed to have met the core curriculum requirements and deemed eligible for the scholarship if all other eligibility requirements established in this Chapter are met.

b. Pursuant to NRS 396.930, a student who has successfully completed one or more computer science courses described in Section 4 of Senate Bill 200[7] (Chapter 597, Statutes of Nevada 2017) can apply not more than one unit of credit received for the completion of such courses toward either the math or science high school course requirements.

9.15.2 As part of their role to establish the list of eligible high school graduates under Section 9.5 of this Chapter, Nevada school districts and private and charter high schools not associated with a school district shall determine whether the courses taken by a student while in high school, including dual enrollment and dual credit courses, and included on their transcript meet the core curriculum requirements.

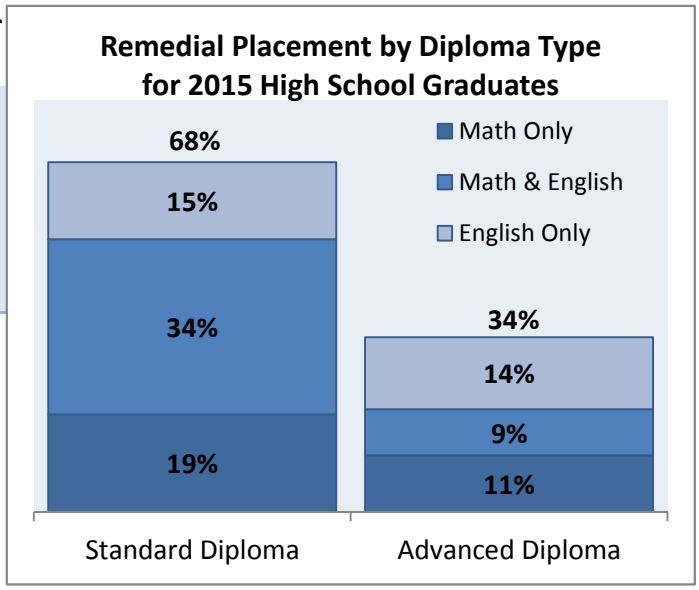
[7] ***Section 4 of S.B. 200 describes the following computer science courses: (a) An advanced placement computer science course; (b) A computer science course that is offered through a program of career and technical education; or(c) A computer science course that is offered by a community college or university which has been approved pursuant to NRS 389.160.***

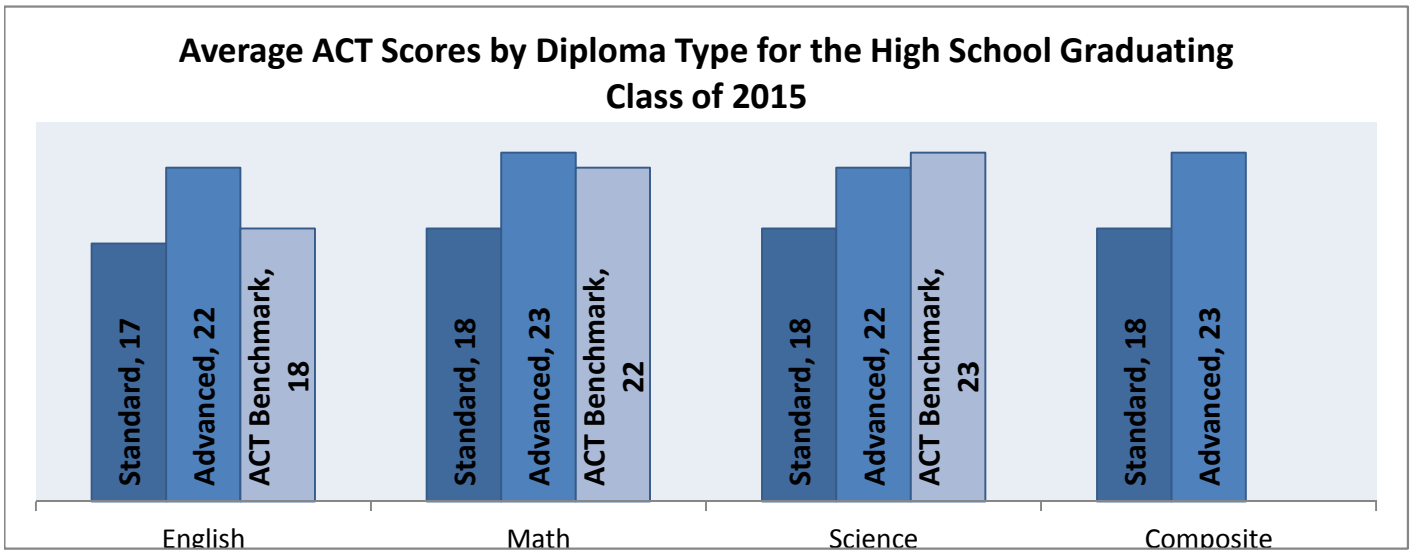
College Readiness by Diploma Type

The advanced diploma requires 4-years of math and 3-years of science while the standard diploma requires 3-years of math and 2-years of science. The data shows that students with an advanced diploma are far more prepared than those with a standard diploma. Diluting the math requirements for an advanced diploma to 3-years or the science requirements to 2-years may result in a decline in the level of preparation for those students similar to those of a standard diploma.

Continuation to NSHE Institution by Diploma Type for 2015 High School Graduates

	Percent of Students Receiving Diploma Type	Continued to STEM Degree	Continued to Non-STEM Degree
Washoe County			
Standard Diploma	51%	13%	26%
Advanced Diploma	49%	37%	33%
Clark County			
Standard Diploma	73%	15%	23%
Advanced Diploma	27%	32%	32%

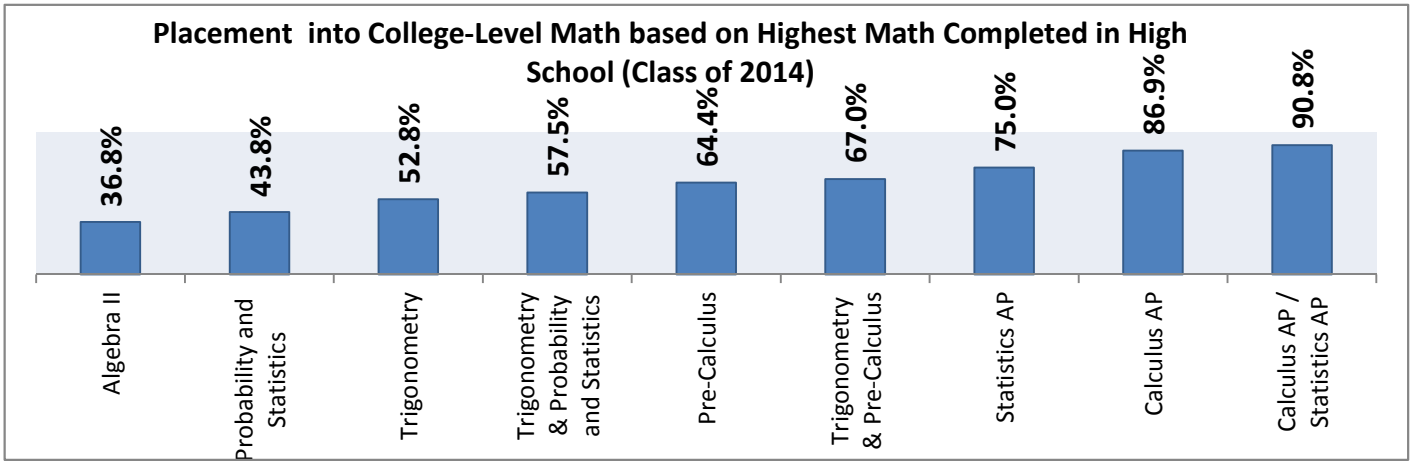




Advanced diploma recipients with the required four years of math, score an average of 23 on the ACT math exam. This exceeds the ACT math benchmark for college readiness (22). Standard diploma recipients fall short of the math benchmark at an average score of 18.

Advanced diploma recipients with the required three years of science, score an average of 22 on the ACT science exam. This closely approaches the ACT science benchmark for college readiness (23). Standard diploma recipients fall short of the science benchmark at an average score of 18. Diluting the science requirements for an advanced diploma will will likely result in a decrease in the average score which is already lower than the benchmark.

The College Readiness Benchmark Scores as reported by the ACT are defined as the minimum score needed on an ACT subject-area test to indicate a 50% chance of obtaining a B or higher or about a 75% chance of obtaining a C or higher in corresponding credit-bearing college courses. These courses include English Composition, Algebra, Social Science, and Biology.



Students who follow the traditional path of Algebra I, Geometry, Algebra II beginning as a freshman in high school will achieve Algebra II their junior year. In this situation, courses requiring Algebra II as a pre-requisite, such as Probability and Statistics, Trigonometry, and Pre-Calculus, will be completed as the fourth year of math during the senior year. Data repeatedly demonstrates that more and higher math result in students better prepared for the rigour of college.

Computer Science Majors at NSHE Institutions

Percent of First-time, Degree-Seeking Computer Science Majors who are Minority

	2011-12	2012-13	2013-14	2014-15	2015-16	2016-17
Universities	**45.5%**	**54.5%**	**60.2%**	**62.6%**	**63.6%**	**63.8%**
UNLV	67.8%	65.8%	68.4%	72.1%	73.3%	76.7%
UNR	27.4%	46.0%	54.2%	41.8%	50.0%	47.3%

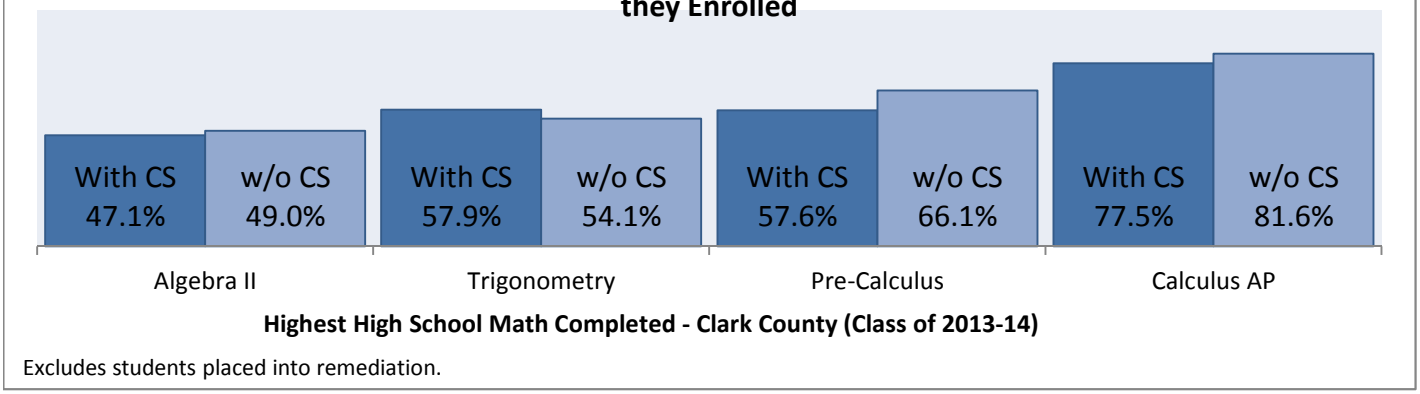
Systemwide, the majority of CS majors are students from minority populations.

Percent of First-time, Degree-Seeking CS Majors Completing Required Math or Science Course

	2011-12	2012-13	2013-14	2014-15	2015-16
# yrs to complete	5.5	4.5	3.5	2.5	1.5
Physics 180	36.0%	36.2%	35.9%	27.7%	30.1%
Math 181	61.0%	58.2%	59.7%	53.2%	56.9%

The graduation rate for students who complete a gateway math course within their first two years of study is 51.2% compared to 24.5% for those who do not.

Only 40.1 percent of first-time, degree-seeking Computer Science majors (2011 to 2015) enrolled directly into Math 181. The remaining students first enrolled into either a remedial course or college math course lower than required, or did not enroll in a math course. 36.1 percent of students who enrolled in Math 181 did so two or more times and still may not have completed the required computer science math requirement.



Excludes students placed into remediation.