THE WASHINGTON STATE BOARD OF EDUCATION

A high-quality education system that prepares all students for college, career, and life.

Title:	**Data Spotlight – Graduation and Advanced Course Taking**
As Related To:	☒ Goal One: Develop and support policies to close the achievement and opportunity gaps. ☐ Goal Two: Develop comprehensive accountability, recognition, and supports for students, schools, and districts. ☒ Goal Three: Ensure that every student has the opportunity to meet career and college ready standards. ☐ Goal Four: Provide effective oversight of the K-12 system. ☐ Other
Relevant To Board Roles:	☒ Policy Leadership ☐ System Oversight ☐ Advocacy ☐ Communication ☐ Convening and Facilitating
Policy Considerations / Key Questions:	Key Questions: 1. Did the Class of 2014 graduation rate increase from 2013 and what does the trend data look like? 2. How does the 2014 graduation data compare to the Statewide Indicators of Educational System (ESSB 5491) annual targets? 3. Did the graduation gap based on poverty status narrow or widen? 4. Is any disproportionality in participation rate in advanced course taking and Dual Credit evident in recent data? 5. Which student groups are taking Advanced Placement assessments and what success are they having? 6. Which students are taking STEM related Advanced Placement tests?
Possible Board Action:	☒ Review ☐ Approve ☐ Adopt ☐ Other
Materials Included in Packet:	☒ Memo ☐ Graphs / Graphics ☐ Third-Party Materials ☐ PowerPoint
Synopsis:	This data spotlight will focus on three separate topics related to outcomes for high school students. The broader topics encompass the class of 2013-14 graduation rates, advanced course–taking patterns of those students, and Advanced Placement participation and attainment. Some of the important findings include: • Graduation rates increased for all but one student group in 2014 as compared to 2013, but the five-year trend data shows small gains for only one-half of the student groups. • Advanced course-taking disproportionality based on race/ethnicity, poverty status, and geography is evident across the state. • Participation in the Preliminary SAT and Advanced Placement is disproportionate based on race/ethnicity and student groups that are traditionally viewed as being underserved in the educational system are under-represented in the Advanced Placement STEM related testing system.

DATA SPOTLIGHT
GRADUATION AND ADVANCED COURSE TAKING

Policy Considerations

The Washington Achievement Index (WAI) currently uses the 5-Year Adjusted Cohort Graduation Rate (ACGR) as the only College and Career Ready (CCR) indicator for rating high schools. Beginning with next year's WAI, the CCR indicator will include Dual Credit participation as an additional measure from which high schools will be rated.

The OSPI will present on one Dual Credit program (Advanced Placement (AP)) and the OSPI's efforts to provide equitable access to AP coursework. At the same time, the OSPI will inform the Board as to impediments to full access to AP for all students.

Summary

This data spotlight will focus on three separate topics related to outcomes for high school students. The broader topics encompass the class of 2013-14 graduation rates, advanced course–taking patterns of those students, and Advanced Placement participation and attainment. The most important findings include:

1. Graduation rates mostly increased from 2013 to 2014.
    a. The Washington 4-Year (On-Time) ACGR for the class of 2013-14 increased 1.2 percentage points to 77.2 percent.
    b. All student groups required for federal reporting (except for the Two or More race/ethnicity student group) showed an increase in graduation rate in 2014 as compared to 2013.
    c. While the two-year trend for most student groups is up, the five-year trend is positive for only one half of the student groups used for federal reporting.
2. Advanced course taking patterns are addressed in a separate memo in this packet.
3. Disproportionality based on race and ethnicity percentages is evident with respect to participation in the College Board's PSAT and AP program;
    a. The participation rates on the PSAT for the Hispanic/Latino student group is disproportionately low and that for the Asian student group is disproportionately high.
    b. The percent of Asian AP test-takers is disproportionately high and the percent of Hispanic/Latino test-takers is disproportionately low.
    c. More than 90 percent of all AP STEM tests are taken by White and Asian students.

Class of 2013-14 Graduation

On-Time Graduation Rates for the Class of 2013-14

The 2013-14 On-Time ACGR was recently released by the OSPI and showed a 1.2 percentage point increase for the All Students group from the previous year and a 1.8 percentage point increase from the class of 2009-10 (Table 1). The on-time graduation rates for most of the

student groups used for federal reporting declined each year beginning the class of 2009-10. The 2013-14 rates appear to signal a reversal of the downward trend.

Table 1 shows that the five-year change (five graduating classes) from the class of 2009-10 to the class of 2013-14 for Asian, Hawaiian / Pacific Islanders, Two or More races, and English Language Learners (ELLs) is positive, while the five-year change for Black / African Americans, American Indian / Alaskan Native, Hispanic / Latino, White, Students with Disabilities (SWD), and students qualifying for Free and Reduced Price Lunch (FRL) is negative.

Table 1. On-time graduation rates for the ESEA subgroups for the five most recent years.

4-Yr Cohort Grad Rate	2009-10	2010-11	2011-12	2012-13	2013-14	2-Year Change+	5-Year Change+
All Students	**75.4%**	**76.6%**	**77.2%**	**76.0%**	**77.2%**	1.2	1.8
Black / African American	70.0%	68.9%	66.9%	65.4%	67.8%	2.4	-2.2
American Indian / Alaskan Native	62.9%	62.2%	56.4%	52.5%	53.7%	1.2	-9.2
Asian	85.9%	84.9%	84.4%	84.1%	86.5%	2.5	0.6
Hispanic / Latino	68.6%	67.6%	66.5%	65.6%	67.3%	1.7	-1.3
Hawaiian / Pacific Islander	61.9%	66.9%	64.4%	62.3%	64.6%	2.3	2.7
White	82.5%	81.9%	80.2%	79.4%	80.5%	1.1	-2.0
Two or More		73.6%	78.1%	76.2%	75.5%	-0.7	*1.9
Students with Disabilities	63.7%	59.6%	57.4%	54.4%	55.7%	1.3	-8.0
Limited English	53.6%	54.5%	53.8%	50.4%	53.7%	3.3	0.1
Low-Income	71.2%	68.5%	66.0%	64.6%	66.4%	1.7	-4.8

*Note: 4-Year change for the Two or More student group

+Note: Change shown as percentage points

Comparison to the Statewide Indicators of the Educational System (ESSB 5491) Targets

At the November Board meeting, the SBE staff presented on the Statewide Indicators of the Educational System (ESSB 5491), but the presentation did not include this new graduation data. The SBE staff believes the Board would be interested to know whether the ESSB 5491 annual targets were met. For the All Students group, Table 2 shows that the 2013-14 on-time graduation rate of 77.2 percent was 3.0 percentage points below the 2013-14 annual target. The table also shows (Column C) that the 2013-14 graduation rates for all subgroups were lower than the annual target.

Table 2.Summary of the Statewide Indicators of the Educational System annual targets.

4-Yr Cohort Grad Rate	A 2013-14	B Target 2013-14	C Diff 2013-14*	D Actual Change* 2013-2014	E Goal: Yearly Step*	F Diff *
All Students	**77.2%**	**80.2%**	**-3.0**	1.2	1.7	**-0.5**
Black / African American	67.8%	72.5%	-4.7	2.4	2.3	0.1
American Indian / Alaskan Native	53.7%	65.1%	-11.4	1.2	2.9	-1.7
Asian	86.5%	86.8%	-0.3	2.5	1.1	1.4
Hispanic	67.3%	71.8%	-4.5	1.7	2.4	-0.7
Pacific Islander	64.6%	70.6%	-6.0	2.3	2.5	-0.2
White	80.5%	83.8%	-3.2	1.1	1.4	-0.3
Two or More	75.5%	79.3%	-3.8	-0.7	1.7	-2.4
Students with Disabilities	55.7%	64.4%	-8.7	1.3	3.0	-1.7
Limited English	53.7%	60.7%	-7.0	3.3	3.3	0
Low-Income	66.4%	71.9%	-5.6	1.7	2.3	-0.6

*Note: The unit of measure is percentage points

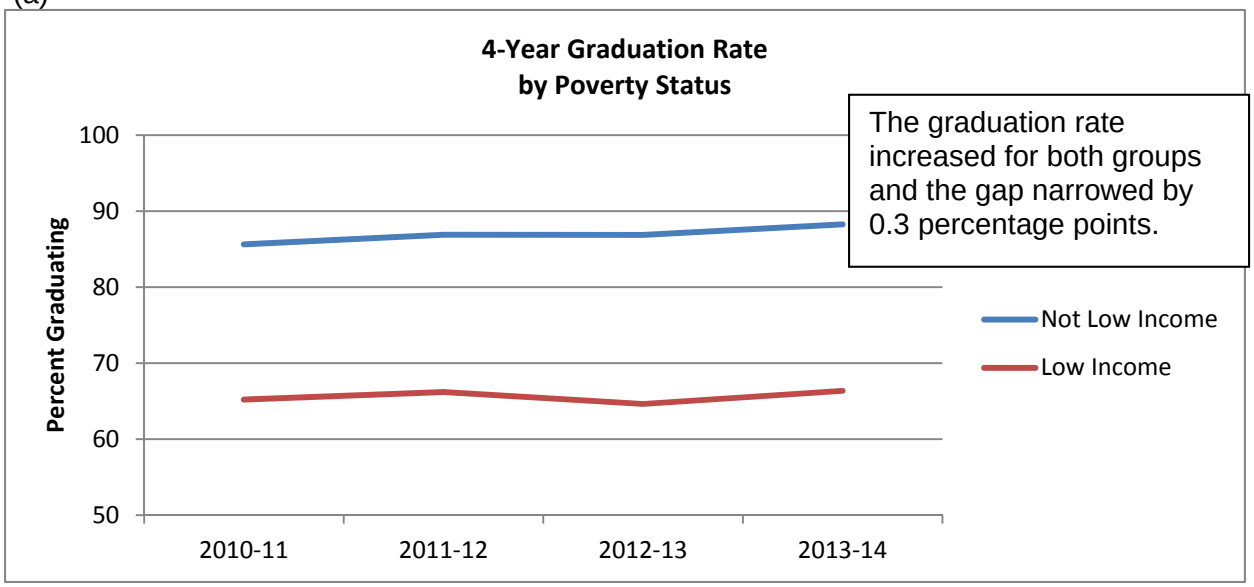
The manner in which the ESSB 5491 targets were developed means that for each year a group fails to meet the annual target, the group must exceed the annual target in future years to reach any given target. With this in mind, the Board might wish to know whether any student group met or exceeded the annual step increase. To answer this question, Column D shows the actual change in graduation rate from 2013 to 2014 and Column E shows the annual step or increase computed through the target-setting process. Table 2 (Column F) shows that the Black, Asian, and English Language Learners student groups met or exceeded their annual step increase, while all of the other groups' increase (or decrease) was below the individual targets. This means that even though most groups showed modest improvements, the improvements were below annual step increases.

Graduation Gap Based on Poverty Status

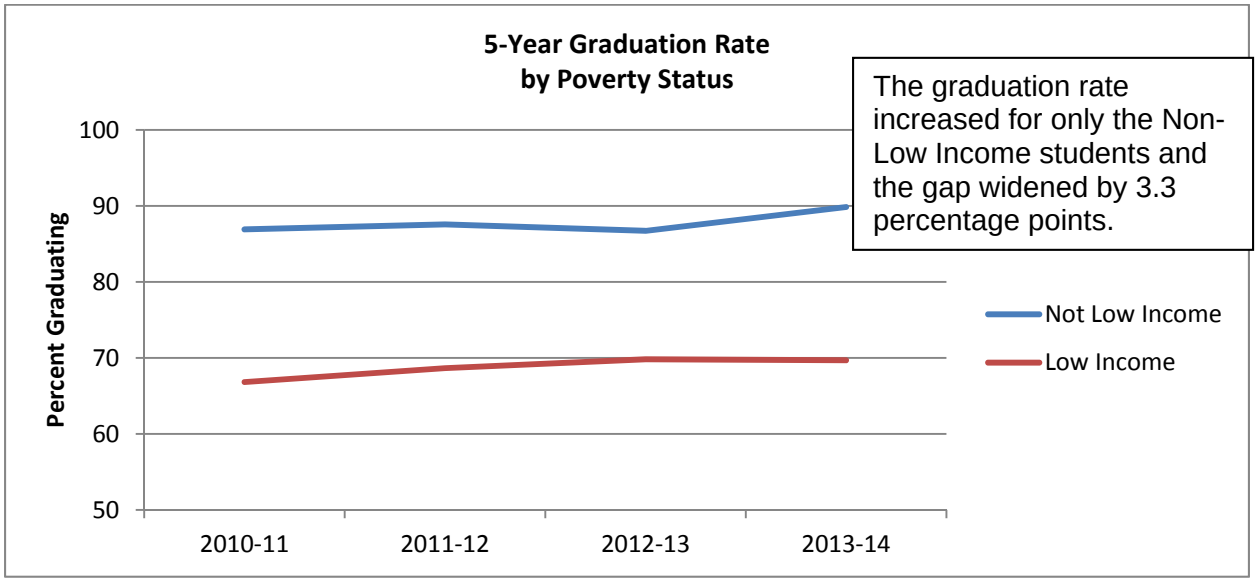
At the September Board meeting, the SBE staff presented to the Board on performance gaps based on poverty status. For the on-time graduation rate, the rate for students qualifying for Free and Reduced Price Lunch (FRL) increased by 1.8 percentage points while the rate for the Not-FRL increased by 1.4 percentage points. This means that the graduation performance gap based on poverty status decreased by about 0.3 to 0.4 percentage points (Table 3b). For the Five-Year ACGR (Table 3b), the FRL graduation rate declined by 0.1 percentage points while the Not-FRL rate increased 3.2 percentage points. This gap shows a net increase of 3.3 percentage points.

Table 3. On-time (a) and Five-Year (b) graduation rates based on poverty status.

(a)



(b)



In a broad sense, the graduation rates and gaps are troubling as large gaps are evident and the gaps are not narrowing substantially. Over the last four reporting years, the on-time graduation gap based on poverty increased approximately 1.5 percentage points to 21.9 percentage points in 2013-14, while the 5-Year graduation gap based on poverty was essentially unchanged at 20.2 percentage points.

Dual Credit in the Index

The SBE staff addressed the issue of including Dual Credit measures in the Index with the Achievement and Accountability Workgroup (AAW) on multiple occasions over the previous two years. In fall 2014 the AAW recommended that the SBE use a 'phase-in' process to include Dual Credit measures in the Index over multiple years, beginning with the inclusion of participation and then attainment. To this end, the SBE is including Dual Credit participation in the 2014 Index, but for display purposes only. Dual Credit participation will not factor into the school ratings until the 2015 WAI, set to be released approximately one year from now.

The AAW members contended, and cited research supporting the idea that Dual Credit participation is at least as important as Dual Credit attainment. The AAW members were concerned that not all students had access to Dual Credit and that attainment might be hindered on account of socioeconomic status. The AAW members' concerns are noteworthy because is it likely true that not all high school students in Washington have equal access to all Dual Credit programs.

The ensuing discussion is centered on only the Advanced Placement (AP) program developed by the College Board. The Board members should note that the access, participation, and credit attainment through the other Dual Credit opportunities, such as International Baccalaureate, Cambridge, Running Start, College in the High Schools, and other Career/Technical Educational programs, will vary considerably by program and by school district.

One Measure of Dual Credit

The College Board developed and administers several programs and assessments related to predicting success in college. Many high school students will assess for CCR by:

- Participating in practice Preliminary SAT (PSAT) as a freshman,
- Participating in the live PSAT as a sophomore to assess for AP readiness,
- Participating in the live PSAT as a junior to qualify for the National Merit Scholarship Program,
- Participating in Advanced Placement (AP) to attain credits toward college, and
- Participating in the live SAT as a junior and or senior as a requisite for admission to some institutions of higher education.

College and career preparation is not a single event, but rather a sequence of opportunities that should be made available to all high school students throughout their high school careers. The programs addressed in the remainder of this memo are the PSAT and AP. Information presented here will be augmented by the OSPI presentation at the Board meeting in Tacoma.

What students are participating in the PSAT as sophomores? In 2014,

- 25,355 Washington sophomores (31 percent) sat for the PSAT
- The Asian student group participates at a disproportionately high rate and the Hispanic/Latino student group at a disproportionately low rate. The other race/ethnicity groups participate at a rate approximating that across the state.

What students are participating in the PSAT as juniors? In 2014,

- 36,210 Washington juniors (46 percent) sat for the PSAT
- The Asian student group participates at a disproportionately high rate and the Hispanic/Latino student group at a disproportionately low rate.

Table 4 provides more information about who participated on the 2014 PSAT. The table shows that approximately 21 percent of Hispanic/Latino sophomores and 32 percent of Hispanic/Latino juniors participated in the 2014 PSAT. Compare those percentages to the Asian Student group where 49 percent of sophomores and 77 percent of juniors sat for the same assessment. White, Black, and Native American sophomores all participate at a rate of approximately 30 percent but the rates of junior test-takers are substantially different.

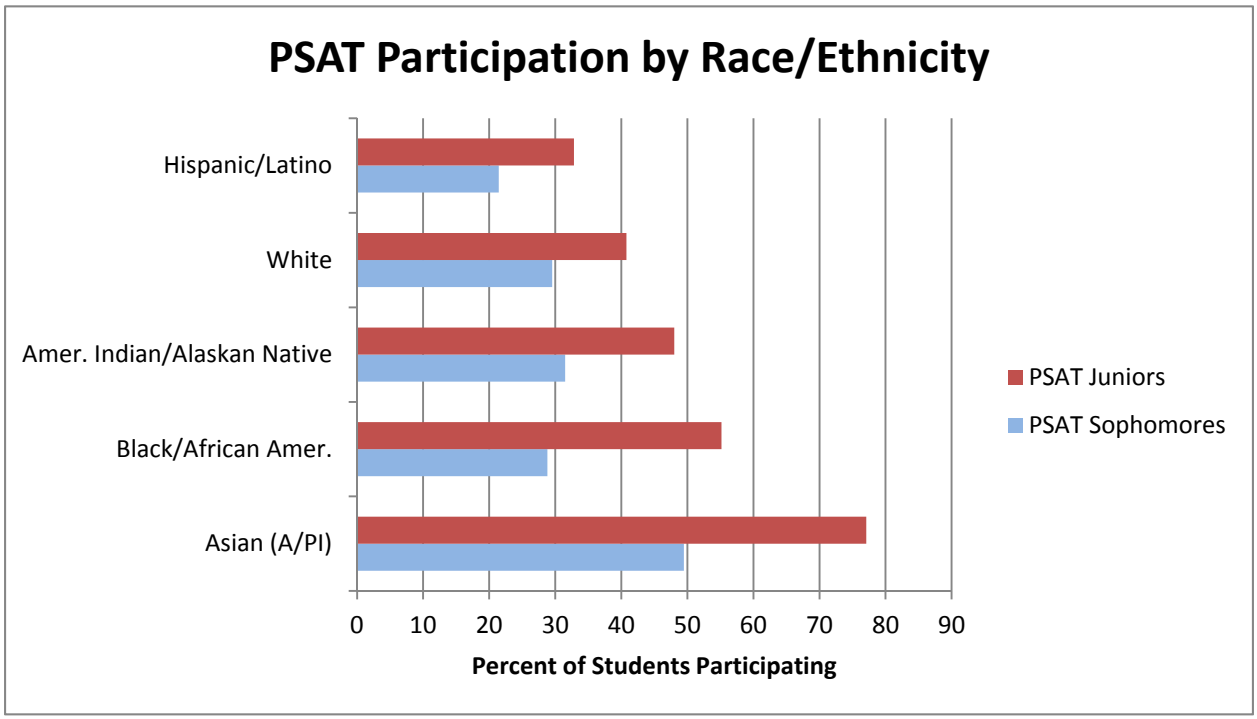
Which students are enrolling in AP courses in their high schools? The AP participation will be:

- addressed by the OSPI staff in their presentation to the Board and
- in another data spotlight memo in this board packet.

How many students are taking AP tests and what kind of success are they having? In Washington:

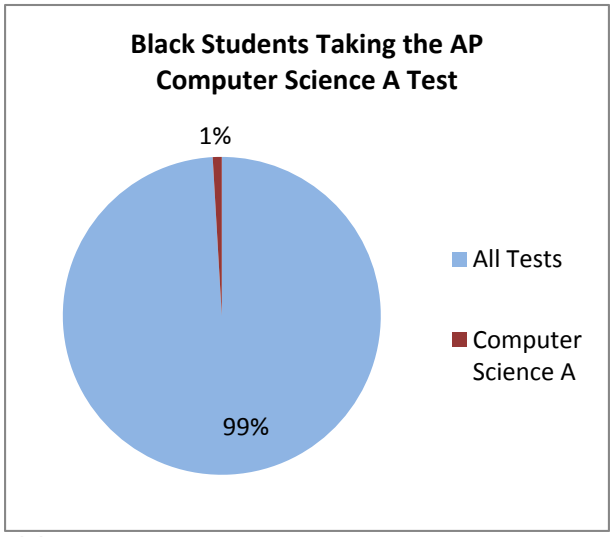
- 36,361 students took a total of 73,069 AP tests, meaning that each student took two approximately two AP tests.
- Approximately 60 percent of the total number of tests received a passing score of three or higher.

Table 4. Percent of student groups participating on the 2014 PSAT as sophomores and juniors.

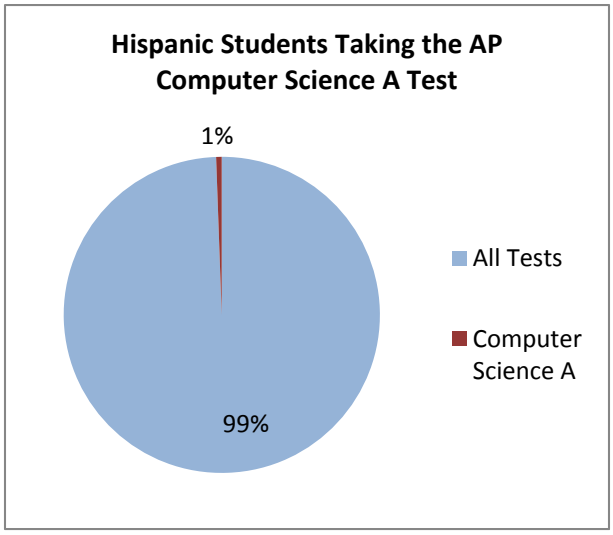


Are traditionally underserved populations taking the STEM-related AP tests? This is difficult to answer without a deeper analysis, but a few facts include:

- One percent of Black students who took at least one AP test took the Computer Science A test Figure 1a.
- 511 Native American students took at least one AP test, but only 10 took the Computer Science A test and only 17 took the Calculus BC test.
- One percent of Hispanic students who took at least one AP test took the Computer Science A test (Figure 1b) and only 33 (2 percent) took the Calculus BC test.
- Approximately 86 percent of the STEM tests are taken by students self-identifying as White or Asian (Figure 1c).



(a)



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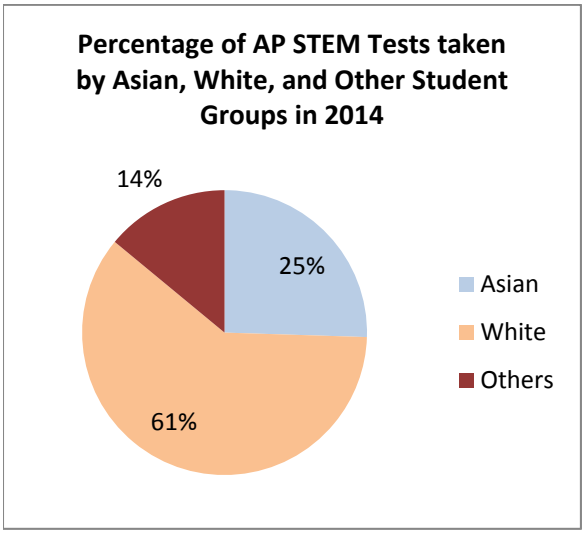


(c)

Figure 1. Shows the percentage of Black (a) and Hispanic (b) students taking the AP Computer Science A test in 2014, and the percentage of AP STEM tests taken by various student groups in 2014.

Action

No Board action is proposed – for information only.

Contact Andrew Parr at andrew.parr@k12.wa.us if you have questions regarding this memo.

OPPORTUNITY GAPS IN ADVANCED COURSE-TAKING

Policy Considerations

The State Board of Education has as Goal One of the 2015-2018 Strategic Plan to develop and support policies to close the achievement and opportunity gaps. Under that goal, the Board has a strategy to research and promote policies to close opportunity gaps in advanced course-taking. No board action is expected at this time.

- What is the importance of completing advanced courses?
- What do the data show about national trends in advanced course-taking?
- What do the data show about advanced course-taking gaps in Washington?
- What may cause opportunity gaps in advanced course-taking?
- What policy work could close those opportunity gaps?

Background

Course-taking data allow for a quantitative analysis of an opportunity gap – the opportunity to take advanced courses. These course-taking data are relatively new, collection started in the 2009-2010 school year. These data takes us beyond achievement gaps measured by assessment data to opportunity gaps measured by credits earned in advanced courses that impacts career- and college-readiness.

What is the definition of an advanced course in this analysis?

For the purposes of the quantitative analysis in this Data Spotlight, credits earned in higher-level math and science courses were examined. These higher level courses are those that go beyond the minimum graduation requirements and are generally considered to be more rigorous than what the majority of students complete. State Course Codes, a standardized way of identifying course content throughout the state, were used to group math and science courses into categories such as calculus courses, international baccalaureate math courses, physics courses, and others. For the part of this Data Spotlight that examines potential causes of the opportunity gaps and possible policy solutions, the definition of an advanced course is broadened to include Dual Credit programs in addition to the higher-level math and science courses.

What is the importance of completing advanced courses?

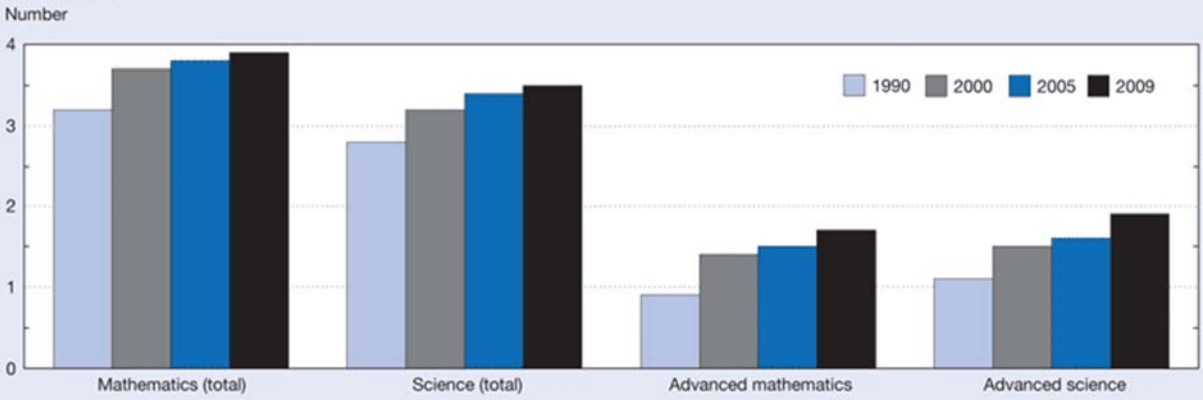
Completing advanced courses saves the state money on remediation, raises achievement levels, saves the state money by giving high school students college credits, and improves outcomes for highly capable students. The *2012 Road Map Transcript Follow-Up Study* by the BERC Group found that students who completed calculus in high school were unlikely to need remediation while students who did not complete such a high level of math were much more likely to need remediation (Baker, et al. 2012). The Office of Superintendent of Public Instruction has reported to the Legislature that the state saves money by giving high school students college credits through Dual Credit programs (Hubert, 2013). The Washington Student Achievement Council Roadmap *2014 Strategic Action Plan* states that expansion of Dual Credit is a strategic priority for the state and will save money if expanded (WSAC, 2014). Highly capable students who are accelerated to more advanced courses may have improved social

and emotional outcomes once afforded sufficiently challenging coursework that engages their intellect (Wells, 2009).

What do the data show about national trends in advanced course-taking?

As shown in the chart below, total course-taking and advanced course-taking have increased over the last 25 years (National Science Foundation, 2012). On average, students complete more credits of advanced math and science than ever recorded. States have increased minimum graduation requirements, thus requiring students to earn more credits in math and science. Options for advanced course-taking have expanded with the growth of Dual Credit programs. Dual Credit programs include Tech Prep, Running Start, International Baccalaureate, Advanced Placement, College in the High School, and Cambridge.

Average total and advanced mathematics and science credits earned by high school graduates: Selected years, 1990–2009



AP = Advanced Placement; IB = International Baccalaureate

NOTES: "Advanced mathematics" courses include algebra II, trigonometry, statistics/probability, precalculus/analysis, calculus, and any AP/IB mathematics courses. "Advanced science" courses include advanced biology, chemistry, physics, advanced environmental/earth science, engineering, and any AP/IB science courses.

SOURCES: Nord C, Roey S, Perkins R, Lyons M, Lemanski N, Brown J, Schuknecht J, *America's High School Graduates: Results of the 2009 NAEP High School Transcript Study*, NCES 2011-462 (2011); National Science Foundation, National Center for Science and Engineering Statistics, special tabulations (2011) of National Assessment of Educational Progress 1990, 2000, 2005, and 2009 High School Transcript Studies, National Center for Education Statistics. See appendix table 1-7.

Science and Engineering Indicators 2012

However, traditionally underserved student groups have not had equitable access to advanced courses. An analysis by the U.S. Department of Education office for civil rights in 2014 has found that:

> Just 68 percent of African-American students attend high schools that offer calculus. That's compared to 81 percent of white high school students, and 87 percent of Asian American students. What's more, American Indian and Native American students are much less likely than any other ethnic group to attend high schools that offer Advanced Placement classes, calculus, or physics.

What do the data show about advanced course-taking gaps in Washington state?

Data Limitations and Methodology

OSPI staff pulled data on credits earned, referred to as "grade history" by OSPI, by 12th graders in math and science for the Classes of 2012, 2013, and 2014. The data were first collected in the 2009-2010 school year and the data quality is the poorest in that year, then the data quality has improved for subsequent years. OSPI staff have stated concerns about incorrect data entries, miscoded courses, partial records of some students, and potentially incomplete data that does not include every student in Washington. It is important to note that there are data quality issues, but that these data were the best available for analyzing course-taking across the entire state.

In order to calculate the percentage of students from each student group who completed a given course, the number of students who earned one credit or more was used as the numerator. The choice of denominator was more challenging because there were two options that each had drawbacks: dividing by the number of students from each student group who had grade history in the content area or dividing by the total number of students in that graduation class. The denominator that was used for this analysis is the total number of students from each student group who had grade history in math when analyzing math courses and those who had grade history in science when analyzing science courses. Due to the incomplete dataset, this option compensated for missing data by only looking at the students who had grade history records. The alternative option for the denominator was to use the enrollment of the entire student group for the given year. The drawback of this alternative option was that it would make the percentages artificially low due to missing data.

The following math course groups were analyzed:

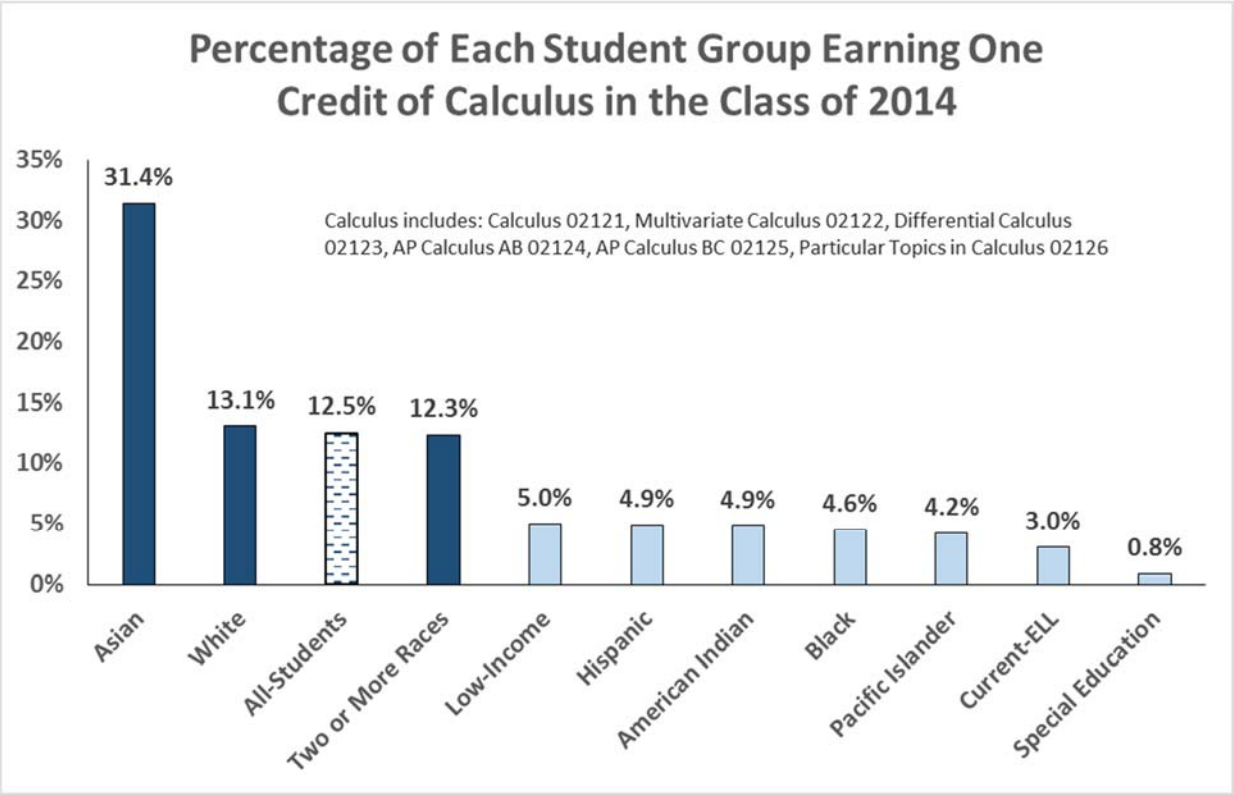
- **International Baccalaureate** – IB Mathematical Studies 02131, IB Mathematics 02132, IB Mathematics and Computing-SL 02133, IB Further Mathematics-SL 02134
- **Statistics** – Probability and Statistics 02201, Inferential Probability and Statistics 02202, AP Statistics 02203, Particular Topics in Probability and Statistics 02204, Probability and Statistics-Independent Study 02207, Probability and Statistics-Other 02209
- **Calculus** – Calculus 02121, Multivariate Calculus 02122, Differential Calculus 02123, AP Calculus AB 02124, Calculus BC 02125, Particular Topics in Calculus 02126
- **Pre-Calculus** 02110
- **Trigonometry** – Trigonometry 02103, Math Analysis 02104, Trigonometry/Math Analysis 02105, Trigonometry/Algebra 02106, Trigonometry/Analytic Geometry 02107
- **Algebra II** - Algebra II 02056, Integrated Math-third year 02063

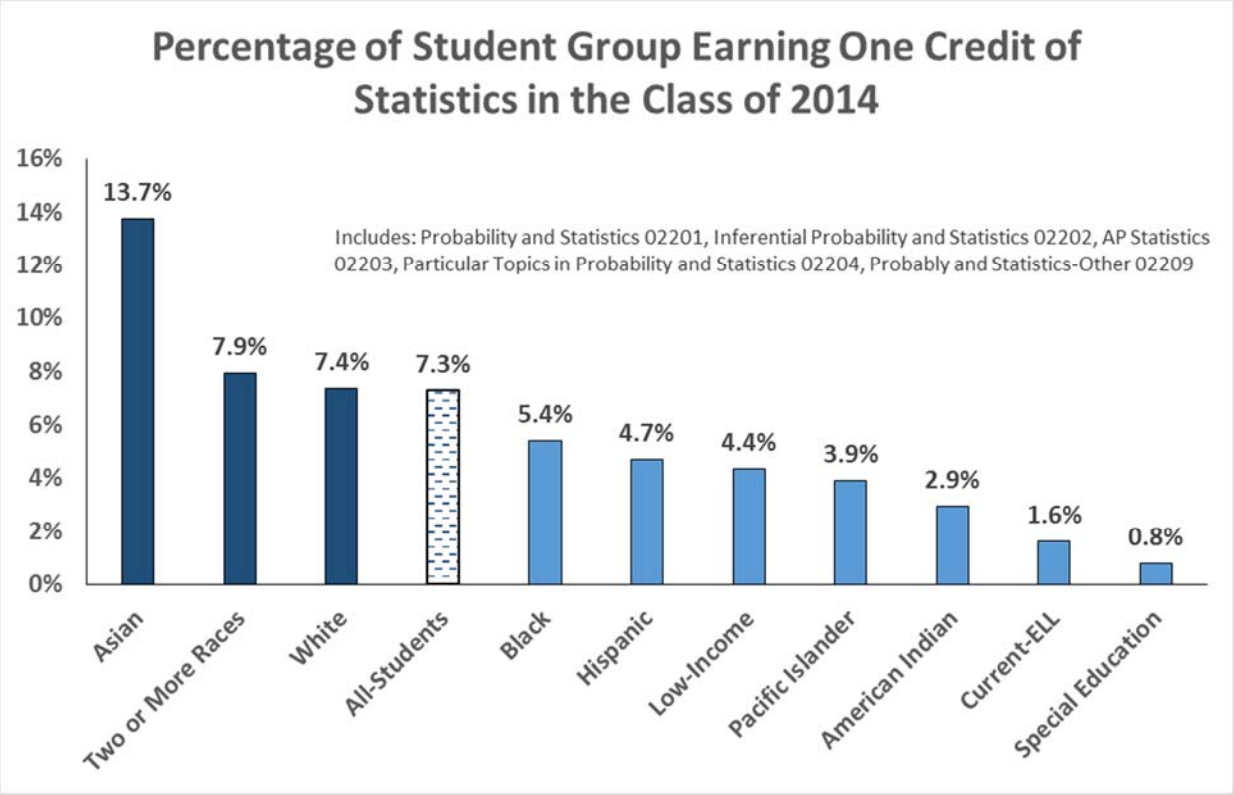
The following science course groups were analyzed:

- **Physics** – Physics 03151, Physics-Advanced Studies 03152, AP Physics B 03155, AP Physics C 03156, IB Physics 03157, Conceptual Physics 03161, Particular Topics in Physics 03162, Physics-Independent Study 03197, Physics-Workplace Experience 03198, Physics-Other 03199
- **Chemistry** – Chemistry 03101, Chemistry-Advanced Studies 03102, Organic Chemistry 03103, Physical Chemistry 03104, Conceptual Chemistry 03105, AP Chemistry 03106, Particular Topics in Chemistry 03108, Chemistry-Independent Study 03147, Chemistry-Other 03149, Applied Biology/Chemistry 03203

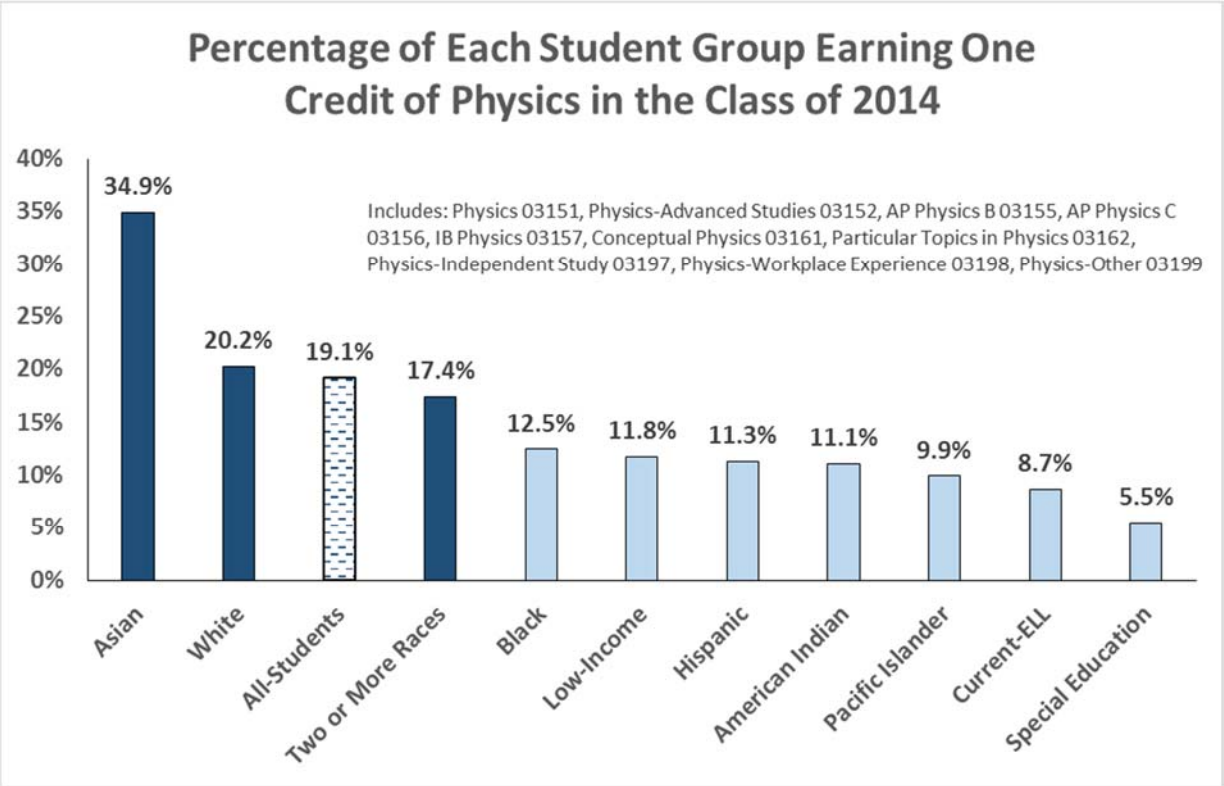
Findings and Results

Similar gaps were found among student groups for each of the math course groupings. The gaps that were found between the Asian student group and other groups were significantly wider than those found in assessment data. Asian students were clearly the most represented in advanced math courses and were extraordinarily represented in IB math courses. The gaps between Asian and the other groups are larger for the more advanced math courses. For instance, precalculus or statistics have smaller gaps between Asian students and the other student groups than calculus or IB math. There are also gaps between Non-Targeted subgroups (White, Asian, and Two or More Races), shown in dark blue in the column charts, and Targeted Subgroups (Black, American Indian, Pacific Islander, Low-Income, Hispanic, Current-ELL, and Former-ELL), shown in light blue in the column charts. Rather than provide many charts that look similar, the following statistics and calculus graphs are representative of the gaps found in each course grouping:


Percentage of Each Student Group Earning One Credit of Calculus in the Class of 2014
35%
30%
25%
20%
15%
10%
5%
0%
31.4%
13.1%
12.5%
12.3%
5.0%
4.9%
4.9%
4.6%
4.2%
3.0%
0.8%
Calculus includes: Calculus 02121, Multivariate Calculus 02122, Differential Calculus 02123, AP Calculus AB 02124, AP Calculus BC 02125, Particular Topics in Calculus 02126
Asian
White
All-Students
Two or More Races
Low-Income
Hispanic
American Indian
Black
Pacific Islander
Current-ELL
Special Education


Percentage of Student Group Earning One Credit of Statistics in the Class of 2014
16%
14%
12%
10%
8%
6%
4%
2%
0%
13.7%
7.9%
7.4%
7.3%
5.4%
4.7%
4.4%
3.9%
2.9%
1.6%
0.8%
Includes: Probability and Statistics 02201, Inferential Probability and Statistics 02202, AP Statistics 02203, Particular Topics in Probability and Statistics 02204, Probably and Statistics-Other 02209
Asian
Two or More Races
White
All-Students
Black
Hispanic
Low-Income
Pacific Islander
American Indian
Current-ELL
Special Education

Gaps in advanced science courses look very similar to those found in advanced math courses. Again, Asians have the largest proportion of enrollment in advanced science courses as demonstrated by this chart on physics.



What may cause opportunity gaps in advanced course-taking? What policy work could close those opportunity gaps?

Achievement Gaps – Adequate Performance is Needed to Thrive in Advanced Courses

Problem? It surely is a noble goal for all students to be ready for advanced courses, enroll in the advanced courses, and then master the highest levels of math and science. However, there is danger in placing students into advanced courses when they do not already have a solid, thorough understanding of prerequisite content. Thus, prematurely placing a student in an advanced course can come at the cost of giving that student a solid foundation in that content area by way of a lower-level course. When students do not adequately understand the prerequisite content needed to succeed in an advanced course, enrolling them in advanced courses can set them up for failure. The achievement gaps among student groups, as evidenced by assessment results, contribute to the advanced course-taking opportunity gap. If students do not have a mastery of the necessary content, they do not have the opportunity to succeed in advanced courses. Unfortunately, assessment results show that students from Targeted Subgroups are, on average, less likely to be proficient and, thus, less likely to be ready to perform at the level necessary to thrive in an advanced course.

Solution? Closing achievement gaps among student groups will lead to closing gaps in advanced course-taking because more students will be ready to thrive in advanced courses if their achievement levels are higher. Placement of students who are not ready into advanced coursework can be avoided through careful guidance counseling and use of assessment data to

make sure that students who are placed in advanced courses fully grasp the content of lower-level courses.

Access – Some Students who are Ready are Not Placed in Advanced Courses

Problem? An Advanced Placement potential analysis of PSAT data by the College Board has shown that far more students have demonstrated the level of readiness needed to succeed in Advanced Placement Courses than are actually enrolled in the courses (Zhang, et al., 2014). This indicates that there are students who are ready for advanced coursework but not being placed into advanced courses, thus contributing to the gaps among student groups.

Solution? Acceleration policies encourage the placement of ready students into advanced courses and would reduce the advanced course-taking opportunity gap by automatically enrolling students into higher level courses if ready. *A Nation Deceived: How Schools Hold Back America's Brightest Students* states that acceleration is the most effective curriculum intervention for highly capable students (Colangelo, 2004).

There is a variety of acceleration options that generally fall into two groupings: content-based acceleration and grade-based acceleration. Content-based acceleration policies allow students who have demonstrated proficiency on assessments to progress to the higher level coursework. Grade-based acceleration, referred to as "grade-skipping," allows students to advance grade level or enter college early. RCW 28A.320.195 encourages the use of acceleration policies and allows for local district policy but does not require that acceleration be made available to all students.

Within Washington, Federal Way and Tacoma have acceleration policies in place that allow for multiple acceleration options and they have been leaders among districts in the implementation of acceleration policy. The Highly Capable program includes content- or grade-based acceleration as options for getting high-performing students into advanced coursework.

The Institute for Research and Policy on Acceleration provides a comparison of state acceleration policies to its guidelines for developing an academic acceleration policy and provides a summary of Washington state policy (IRPA, 2009). Most states leave the choice to develop an acceleration policy to local education agencies. Only Iowa has a comprehensive state acceleration policy, including the Iowa Acceleration Scale that provides extensive guidance to districts on how to objectively decide on whether to accelerate a student in grade level.

Policy work can be done at the state level to close achievement gaps, thereby preparing more students for the challenges of advanced courses. For the students who are ready but are not being enrolled into advanced courses, acceleration policies are a promising way to promote them into challenging and rewarding coursework. Washington allows for local policy on acceleration but, at the state level, does not require that acceleration be an option for students.

Access – Fees and Transportation

Problem? Advanced Placement and International Baccalaureate programs have fees to complete the examination that is required to receive college credit. Running start students do not pay tuition, but do pay for fees, books, and transportation. Students incur transportation costs when they commute from a school that does not offer advanced courses to a school in their district that does offers advanced courses. Advanced courses may require special equipment like graphing calculators for math courses or lab equipment for science courses, thereby exacerbating the financial barriers to low-income students. These costs are barriers that disproportionately impact low-income students.

Solution? A solution to this financial barrier is a fee waiver or reduction program so that low-income students can take advanced courses. Washington state has taken advantage of a federal program that reduces fees for College Board Advanced Placement, International Baccalaureate, and Cambridge Capstone programs (OSPI, 2015). Within the community college system, RCW 28A.600.310 requires institutions of higher education to make available fee waivers for low-income Running Start students and establish a written policy for the determination of eligibility. State Board of Community and Technical College waiver guidance recommends that foster youth be eligible in addition to low-income students. However, books and other materials are not included in the fee waiver, so community colleges and libraries have locally offered book loans for low-income Running Start students. When students need to commute, giving them an hour for transportation in their class schedule can allow them the time needed to get from their high school to a facility that offers an advanced course, whether it be a college or another high school that does offer the desired course. Although free bus passes for students and College in the High School are ways of mitigating transportation barriers, the convenience of having a personal vehicle or a parent who is available to drive the student are advantages often conferred to higher-income students.

Access – Only 11th and 12th Graders are Allowed to Enroll in Dual Credit Programs

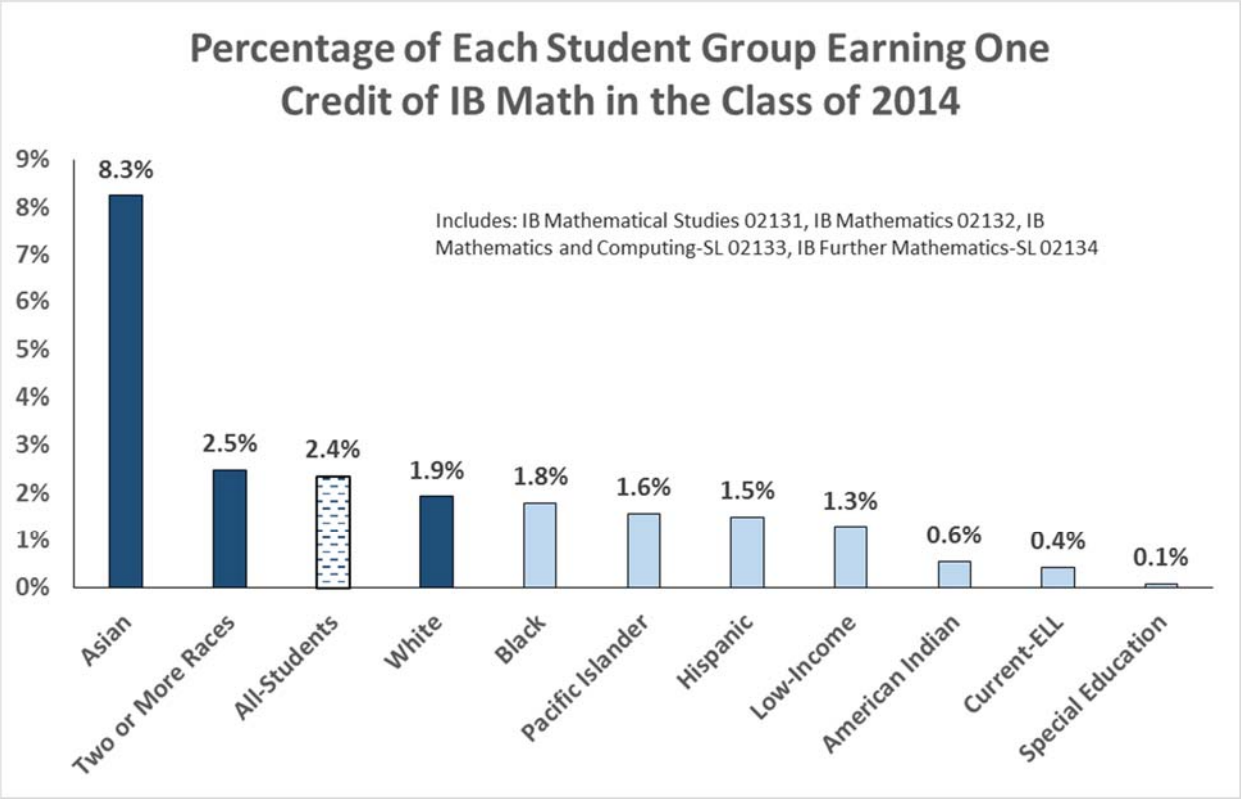
Problem? RCW 28B.15.821 limits access to certain Dual Credit programs like College in the High School to 11th and 12th graders.

Solution? Expanding access to 10th graders and, possibly, 9th graders would expand access to the advanced coursework in Dual Credit Programs. During the 2015 legislative session, Member Childs and Member Osmun testified in support of HB 1031 and HB 1081 that would seek to expand access to Dual Credit programs.

Access – Course Availability – Differences among Regions, Districts, and Schools

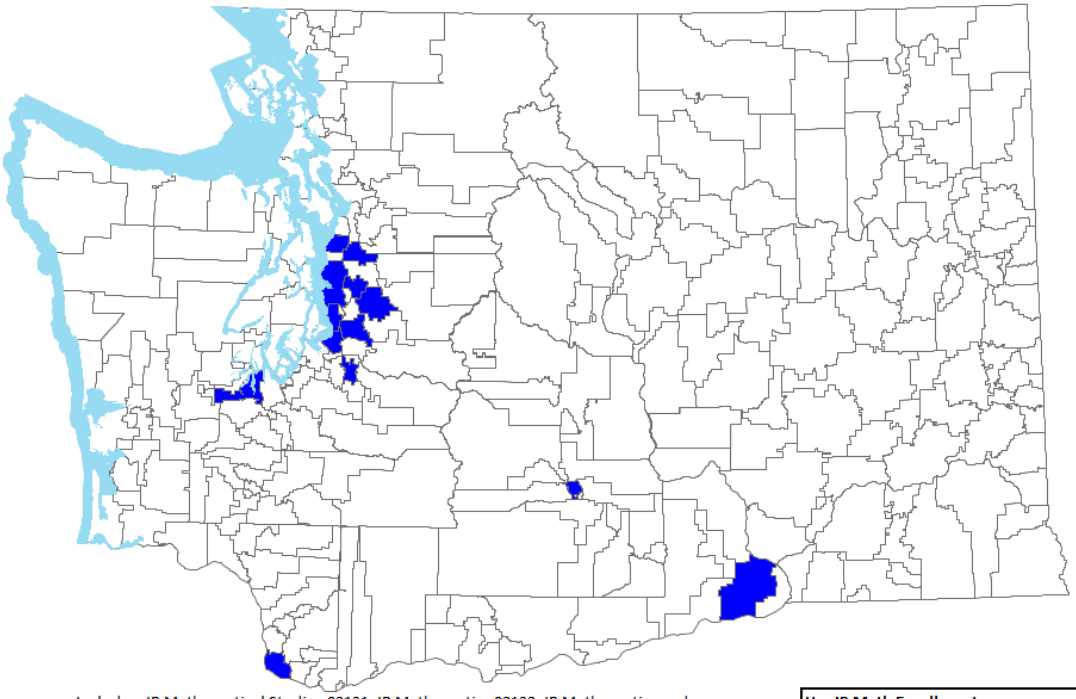
Problem? Having access to advances courses in your district means having a choice – having an opportunity – to take those courses. Regional differences range from small districts with a limited selection of math courses or no advanced courses at all to large districts that have a full menu of Dual Credit Programs and other advanced courses. Offering advanced courses at rural and isolated school districts can be challenging due to limitations on capacity, availability of teachers qualified to teach advanced content, having enough student enrollment to fill advanced courses, and distance to community colleges or skills centers. Some small districts are far away from colleges, universities, and technical skills centers that provide meaningful dual credit opportunities. On the other hand, large districts may have enough capacity, qualified teachers, and eager students to offer an International Baccalaureate program or a full selection of advanced math courses.

The opportunity gaps in advanced course-taking may, in some cases, have a relationship with the demographics of the area and the availability of advanced courses in that area. For instance, the gaps among student groups are large in International Baccalaureate math course-taking. Asian students represent the largest percentage of students earning credit in IB math in proportion to the population of Asian students in the state. International Baccalaureate math programs are available in only a handful of districts, as depicted by the map below. Some of the districts offering IB happen to also be districts where the Asian students make up a larger percentage of enrollment than the average percentage of Asian students in the state. Thus, part of the course-taking gap is related to where the students live. Also, some research has explored the relationship of local labor market needs to course offerings and enrollment but that aspect of the course-taking opportunity gap has not been investigated for this analysis.


Percentage of Each Student Group Earning One Credit of IB Math in the Class of 2014
Includes: IB Mathematical Studies 02131, IB Mathematics 02132, IB Mathematics and Computing-SL 02133, IB Further Mathematics-SL 02134
9%
8%
7%
6%
5%
4%
3%
2%
1%
0%
8.3%
2.5%
2.4%
1.9%
1.8%
1.6%
1.5%
1.3%
0.6%
0.4%
0.1%
Asian
Two or More Races
All-Students
White
Black
Pacific Islander
Hispanic
Low-Income
American Indian
Current-ELL
Special Education

State of Washington

Districts with Students Enrolled in International Baccalaureate High School Math in the 2013-2014 School Year

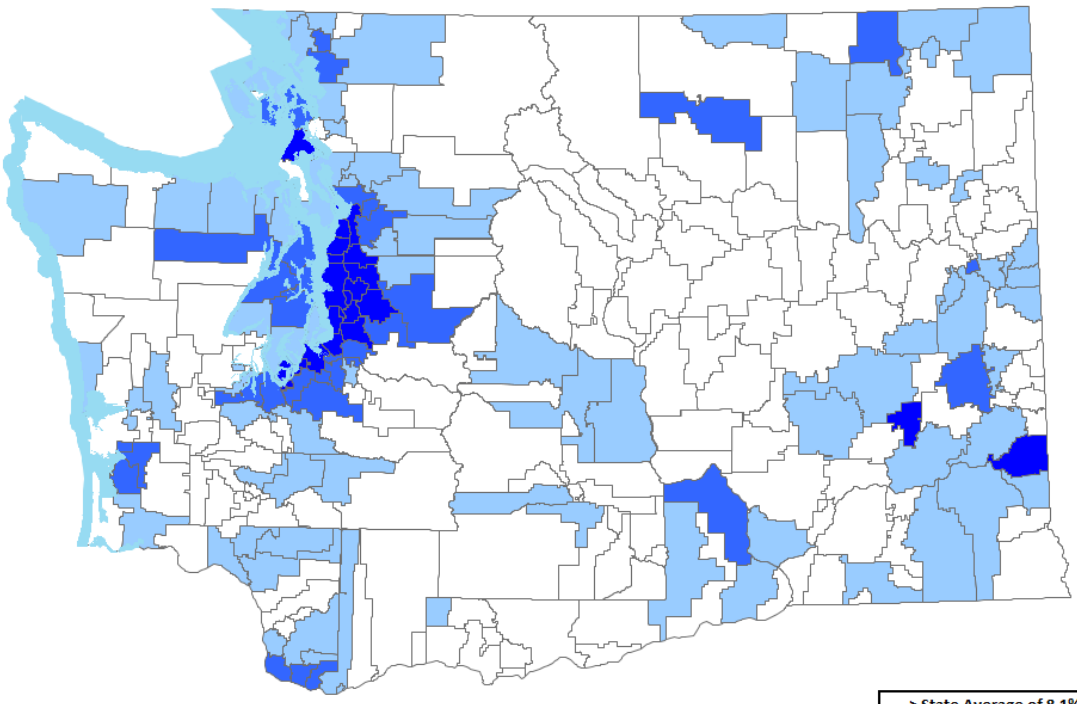


Includes: IB Mathematical Studies 02131, IB Mathematics 02132, IB Mathematics and Computing-SL 02133, IB Further Mathematics-SL 02134

Has IB Math Enrollment	
Does Not Have IB Math Enrollment	

State of Washington

Asian Percentage of Enrollment 2013-2014



> State Average of 8.1%	
3 to 8.1%	
1 to 2.99%	
< 1%	

Solution? Districts and the state can improve course availability by offering advanced courses when there is enough demand from students who are ready for advanced coursework and by continuing to expand access to Dual Credit programs in remote, small districts. Grant programs for starting or expanding Dual Credit programs can improve availability. Online courses can provide advanced coursework even if the provider is located remotely.

Two large districts - Federal Way and Tacoma - have policies that support student access and success in advanced courses, including high school acceleration, fee waivers, and guidance counselling. However, being a small district doesn't mean that advanced courses can't be offered. Curlew School District, one of Washington's smallest districts with fewer than 250 students, had an Advanced Placement participation rate of 56% in the 2011-2012 school year and earned an award from U.S. News as a top school district in the nation in 2014 (U.S. News, 2014). Bridgeport High School in Bridgeport School District, another small district with fewer than 900 students, was selected as one of the top three finalists in a nationwide contest to have President Obama be its commencement speaker (Lacitis, 2011). The selection was due to Bridgeport's high participation rate in Advanced Placement, among other successes of Bridgeport High School.

Accountability – Dual Credit Data in the Achievement Index

Problem? The accountability system has not used course-taking data in its accountability measure.

Solution? The use of Dual Credit participation in the Career- and College-Readiness indicator in the Achievement Index provides an incentive for districts to increase participation in Dual Credit, one type of advanced course. For the 2015 Index that is based on 2013-2014 school year data, participation rates in Dual Credit programs will be reported but not used in the accountability measure. For the 2016 Index that is based on 2014-2015 data, participation rates in Dual Credit programs are planned to be used in the accountability measure.

Social Factors - Expectations of the Student, Parents, School Staff

Problem? Student expectations for career and college can influence course-taking decisions. Student confidence and interest in a content area can impact their course-taking decisions, particularly when a student has made the decision that "I am bad at math." Parents, especially those who are knowledgeable of the American educational system, may drive their students to take advanced courses. Parents who are less informed about the system may not influence their children to take advanced courses.

Solution? School staff, like teacher advisors or guidance counselors, help students to choose courses. Their expectations of the student can impact how they help, the suggestions they make and, ultimately, what courses the student enrolls in. Student and parent engagement by school staff is a step towards getting all of the parties involved and informing them of advanced course opportunities. Cultural competency is important for school staff to assess how their expectations of the student are related to advice and counsel given to the student and family. In particular, cultural competency is important when thinking about who can make it or who cannot in advanced courses.

Social Factors – Course-Taking of Friends, Significant Others, Siblings

Iowa, the only state with a comprehensive state acceleration policy, takes sibling course-taking into consideration when accelerating a student into more advanced courses and counselors assess the student's interest in being enrolled in an advanced course (IRPA, 2009). When school staff are helping a student to choose an advanced course, it is important to consider whether the student's friends, significant other, or siblings are in those advanced courses along with the student.

Summary

Advanced course-taking gaps among student groups exist in Washington and throughout the nation. These opportunity gaps leave some students with a foundation for success in career and college, and other students with less exposure to advanced coursework. There are promising policies that could narrow these gaps, but placement should be done carefully to ensure that students are adequately prepared for advanced coursework and it is a good fit for the individual student.

Action

No action by the Board is anticipated.

If you have questions regarding this memo, please contact Parker Teed at parker.teed@k12.wa.us

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