

Math Achievement Gains in Washington's Community and Technical College System, 2014-15

“The goal of the community and technical colleges’ math strategic plan is to help more students — especially traditionally underserved students — complete academic and professional-technical programs by eliminating barriers to success in math for all students.”

— 2015 Math Strategic Plan

Tracking Student Progression in Math

The primary indicators for math achievement in the community and technical college system are the Student Achievement Initiative (SAI) points for:

- successful completion of the pre-college math sequence.
- successful completion of a college-level math course.

These and the other SAI points represent student progression milestones that are tracked each year to gauge the effectiveness of college practices, and a portion of colleges’ funding is allocated based on performance on those metrics.

System-Level Change in Math Outcomes

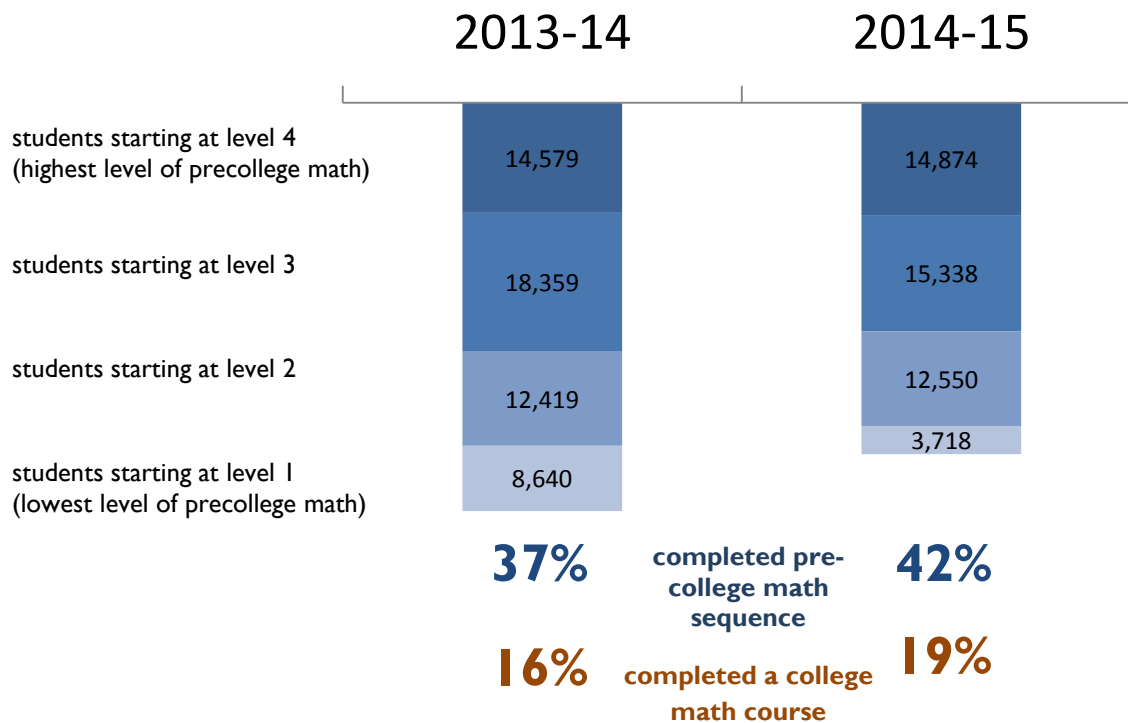
In 2012, the pre-college math student achievement point was revised to put more emphasis on getting a student all the way through the pre-college sequence and into college-level courses as quickly as possible.

Colleges have worked within this framework to redesign both their pre-college sequences and their placement processes as well as provide new student support opportunities.

A comparison of pre-college and college-level math outcomes between 2013-14 and 2014-15 showed significant growth in math performance at the system-level. In 2014-15:

- fewer students enrolled in pre-college math and they started at higher level courses.
- a larger percentage of pre-college math students completed the pre-college math sequence during the year.

Change in pre-college math enrollment and success



College Strategies

Nearly every college showed a positive gain in the percent of pre-college students completing college-level math in 2014-15. These outcomes are the result of a diverse set of strategies aimed at helping students to complete college-level math. The colleges with the highest percentage changes in math outcomes had several strategies in common. These top performers included:

- Big Bend: 24 percent increase in pre-college sequence completion, 6 percent increase in college-level math completion.
- Seattle Central: 10 percent increase in pre-college sequence completion, 6 percent increase in college-level math completion.

- Spokane Falls: 16 percent increase in pre-college sequence completion, 8 percent increase in college-level math completion.

Multiple Measures for Placement

In addition to commonly used placement tests, Spokane Falls Community College and Seattle Central allow students to place into pre-college and college math courses based on their performance in high school math courses. Both colleges also allow students to use ACT or SAT scores as another option for placement.

Spokane Falls also wrote a new placement test using Pearson MMT, which is a two track test — one for students planning to take algebra intensive courses and one for students planning to take statistics or liberal arts math.

Big Bend Community College also uses ACT and SAT scores as options, and supplements the Accuplacer test

with “Forward Placement,” an in-house test to place students one level higher than their initial test.

Alternative Pacing Options

Seattle Central offers modularized instruction units (ALEKS) that enable students to work on specific gap areas instead of having to take or retake a whole course.

Big Bend offers emporium style pre-college math courses to allow students to accelerate and pretest out of units at their own pace.

Spokane Falls has developed an alternative two quarter track for those headed to liberal arts or statistics, which has had significant impact on pre-college course completion rates.

Multiple Math Pathways

Seattle Central is participating in STATWAY, which provides an alternative math pathway for students pursuing liberal arts or statistics.

Big Bend and Spokane Falls also have two pathways for their pre-college math sequence — one for students going into calculus and another for students going into statistics or liberal arts math.

Student Supports

Big Bend’s student success center addresses the need of the "whole" student, including supports for academic, family, and life challenges that may get in the way of completion. The STEM Center provides additional academic support for students in math and other STEM courses.

Seattle Central is one of the six colleges participating in MESA, a program to provide additional support and resources for underrepresented minorities pursuing STEM degrees. The college also employs “Productive Persistence” classroom activities and interventions developed and tested by social psychologists and faculty to help students develop the productive mindsets and effective learning strategies needed to succeed in an academic setting.



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