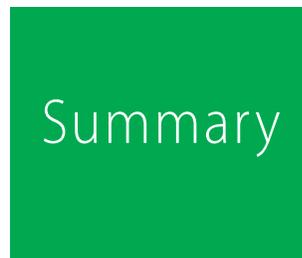




Meeting Oregon's new high school math graduation requirements: examining student enrollment and teacher availability





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Summary

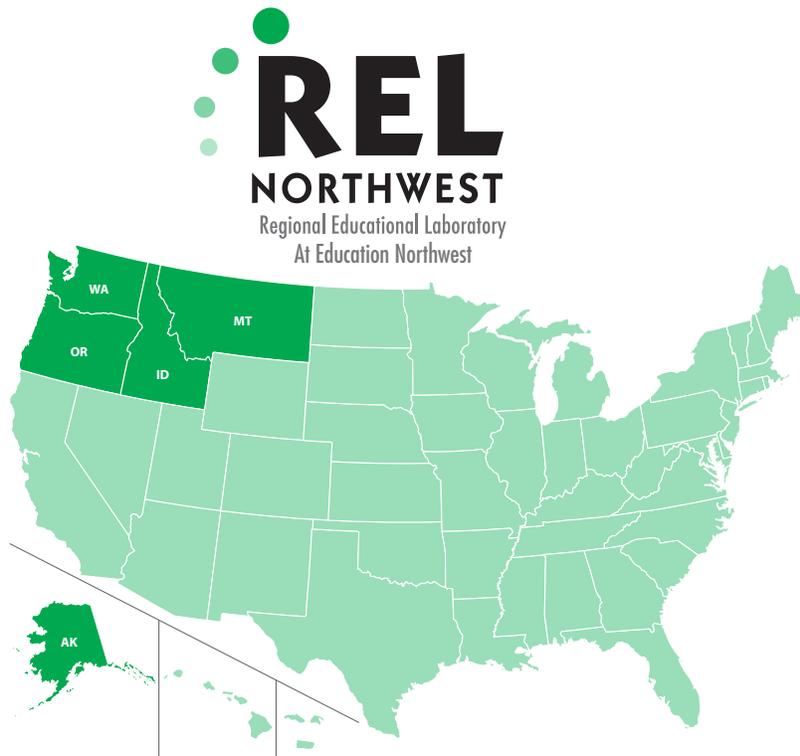
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Issues & Answers is an ongoing series of reports from short-term Fast Response Projects conducted by the regional educational laboratories on current education issues of importance at local, state, and regional levels. Fast Response Project topics change to reflect new issues, as identified through lab outreach and requests for assistance from policymakers and educators at state and local levels and from communities, businesses, parents, families, and youth. All Issues & Answers reports meet Institute of Education Sciences standards for scientifically valid research.

April 2012

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Meeting Oregon’s new high school math graduation requirements: examining student enrollment and teacher availability

At least 11 percent of grade 9–12 students in Oregon would have been off track to meet the state’s new rigorous math requirements for the class of 2014 and beyond had the requirements been in place during 2006/07 and 2007/08. Only 62–80 percent of students would have had access to teachers endorsed to teach advanced math if staffing levels had remained at 2006/07 and 2007/08 levels.

For almost three decades, policymakers across the United States have recommended that high school students take a greater number of academic courses (and more advanced courses) to better prepare for college and the workforce. States have responded by raising graduation requirements, particularly in math. Between 2000 and 2008, 37 states increased the number of math courses required for graduation (Stillman and Blank 2009). Further, 20 states and the District of Columbia now require that all high school graduates complete math coursework at least through algebra II or its equivalent (Achieve 2011). States must pay close attention to course-taking trends so that they can meet the design and implementation challenges that arise when increasing these requirements (Achieve 2007).

Oregon is among the states that have increased both the number of math courses and the minimum level of content required for high school graduation (Oregon Educational Act for the 21st Century 2009). Starting with the class of 2014, students will be required to take three years of math at or above the algebra I level, including geometry. But both Oregon and the Northwest Region face a shortage of qualified math teachers (U.S. Department of Education 2011; Zanville 2006), so many schools could find it difficult to enroll students in coursework sufficiently rigorous to meet these new requirements. And though Oregon law mandates that all students have an equal opportunity to take these courses from teachers endorsed to teach advanced math, the potentially greater level of need in some types of schools—such as small schools and those with high populations of students eligible for free or reduced-price lunch—suggests that the Oregon Department of Education might target support especially to such schools.

Disaggregating the data across four school variables—size, locale, racial/ethnic minority population, and population eligible for free or reduced-price lunch—this study examines the extent to which Oregon grade 9–12 students enrolled in high school math courses

during 2006/07 and 2007/08 would not have been on track to graduate had the new graduation requirements for the class of 2014 and beyond been in place. It looks also at how well the state's 2006/07 and 2007/08 availability of advanced math–endorsed teachers would meet the increased demand stemming from the new requirements. Students were considered off track if they were enrolled in a course that would not allow them, by completing no more than one math course per year, to complete by grade 12 the required three classes at the level of algebra I and above.

Four research questions guide this study:

- What percentage of Oregon's grade 9–12 students enrolled in high school math classes in 2006/07 and 2007/08 would not have been on track to meet the state's new graduation requirements for the class of 2014 and beyond had the requirements been in place?
- How does the percentage of Oregon's grade 9–12 students enrolled in high school math classes who would not have been on track to meet the state's new graduation requirements vary by school size, locale, racial/ethnic minority population, and population eligible for free or reduced-price lunch?
- How well does the 2006/07 and 2007/08 availability of advanced math–endorsed teachers for grades 9–12 meet the increased demand for advanced math courses that will result from the new requirements?
- How does the relationship between the availability of advanced math–endorsed teachers and the grade 9–12 demand for advanced math courses vary by school size, locale, racial/ethnic minority population, and population eligible for free or reduced-price lunch?

Two assumptions underlie the study: that all grade 9 students enrolled in math courses below the algebra I level are on track to meet the new requirements if they complete three courses at or above the algebra I level in grades 10–12 (for a total of four years of high school–level math) and that it may be sufficient for students to complete two courses at the algebra I level and then the required geometry course to meet the new graduation requirements.

Key findings include:

- Had the new graduation requirements for the class of 2014 and beyond been in place during the two study years, at least 11 percent of grade 9–12 students would have been off track to meet the new requirements.
- Of the subcategories within each school type, those with the greatest proportion of students who would not have been on track to meet the new requirements were small schools (18 percent), schools in towns (14 percent), schools with a high racial/ethnic minority population (15 percent), and schools with a high population eligible for free or reduced-price lunch (16 percent).
- Had the availability of advanced math–endorsed teachers remained at 2006/07 and 2007/08 levels, 62–80 percent of grade

9–12 students needing to take advanced math courses would have had access to these teachers under the new requirements, depending on how demand was estimated.

- Grade 9–12 students in small schools would have faced a lower availability of advanced math–endorsed teachers than students in other school size subcategories would have (29–47 percent, depending on

how demand for advanced math–endorsed teachers was estimated); schools with a low population eligible for free or reduced-price lunch would have faced a higher availability than students in other subcategories of free or reduced-price lunch–eligible population would have (75–88 percent, depending on how demand for advanced math–endorsed teachers was estimated).

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