

Welcome!
College Readiness Webinar:
Senior Year Math
will begin soon

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webinar.**

College Readiness Webinar: The Importance of Senior Year Math

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Successful Transition to College

- High school preparedness plays an essential role in students' successful transition to college.
 - Students who are not fully prepared when entering college may be required to take a developmental level course prior to enrolling in a college-level math class.



Remediation in the U.S.

- One study found that approximately 40% of college students in the U.S. took at least one developmental level course (Attawell, 2006).
 - Mathematics was the most common subject for which developmental level coursework was required.
 - The percentage of students taking a developmental course varied depending on the type of institution a student attended and the level of selectivity at a particular campus.



Potential Student Misconceptions

Student Opinion

- It is better to take easier classes in high school so that I can earn a better grade.

Reality

- Research shows that one of the best predictors of college success is taking rigorous high school classes and specifically, that taking a high level of high school mathematics is crucial for preparing a student for college-level work (Bueschel, 2004; Kirst, Venezia, & Antonio, 2004).
- Adelman (1999) found that completing a course beyond Algebra II more than doubled the odds that a student will complete a bachelor's degree.

Potential Student Misconceptions

Student Opinion

- The classes I take during my senior year of high school don't matter since I have already taken my entrance exams and have been admitted to college.

Reality

- The classes a student takes during their senior year of high school may determine the classes they are able to take in college and are also necessary for preparing them for college-level classes. (Bueschel, 2004).

Purpose of the Study

- Investigate high school preparedness and placement into college mathematics courses.
 1. Do students who complete math during their senior year of high school score higher on the UW System math placement test than students who do not take math their senior year of high school?
 2. If there is an observed difference in average math placement test scores for these two groups, does the difference in scores result in different placement levels?
 3. Do math skills regress for students who did not take math during their senior year of high school?

UW System Math Placement Test

- 85 items
 - 75 scored, 10 pilot
- Three sections:
 - Basic Math Skills (MBSC)
 - Algebra (ALG)
 - Trigonometry (TRG)
- Scores range from 150-850
- Highly reliable
 - Reliabilities for the three sections range from .85 to .90s

Math Background Survey

- Did you take math during your junior year of high school?
- Did you take math during your senior year of high school?
- Did you take AP Statistics during your senior year?
- Identify which math courses you took during junior and senior year.



Background Survey: Course Options

- Core plus
- College Prep Math (CPM)
- Integrated Math
- Pre-algebra, general mathematics, or business mathematics
- Algebra I (first year algebra)
- Geometry
- Transition to College Math
- Algebra II or Advanced Algebra with Trigonometry
- Trigonometry
- Precalculus or mathematical analysis
- Calculus or AP Calculus
- Other mathematics

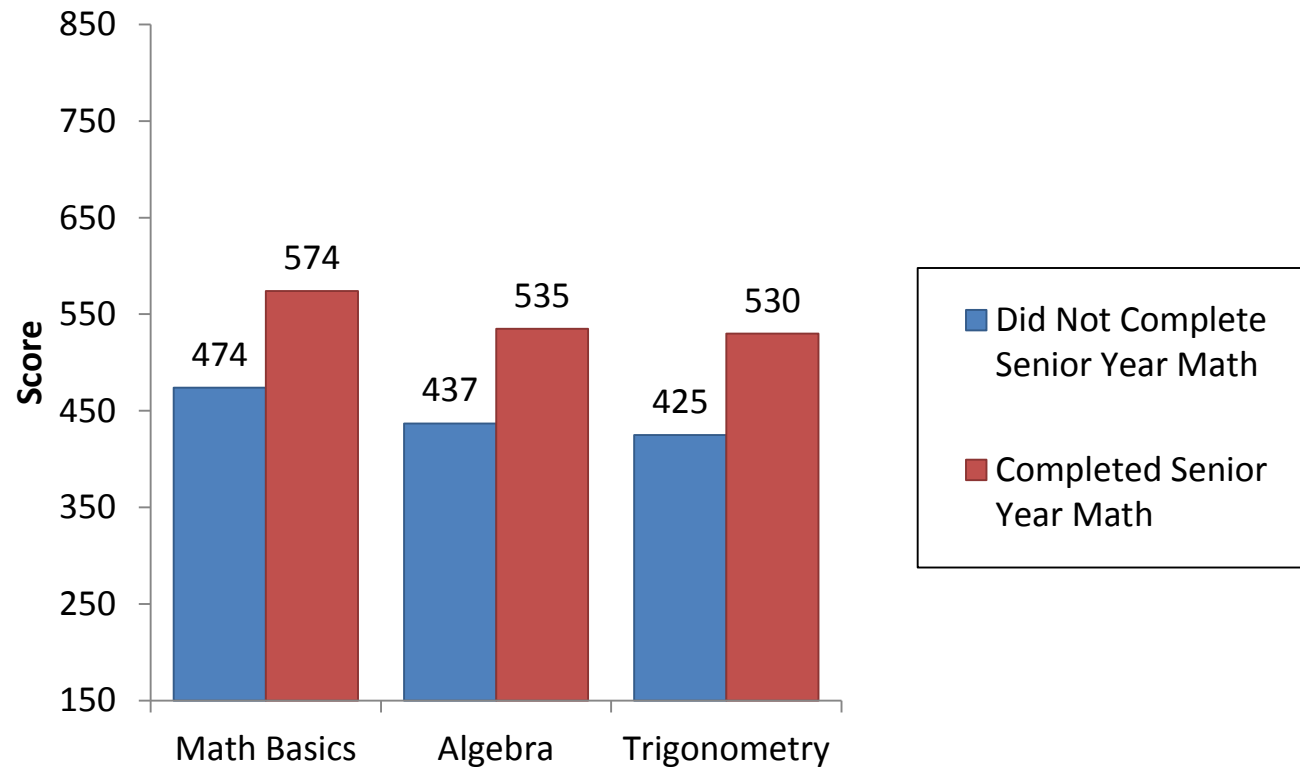
Data

- Three years of data
- Only students who
 - were 17 to 19.5 years old when they took their placement test and
 - completed the math background survey
- Resulting sample size = 49,347

Research Question #1

- Do students who complete math during their senior year of high school score higher on the UW System math placement test than students who do not take math their senior year of high school?

Average Placement Test Scores



Research Question #2

- If there is an observed difference in average math placement test scores for these two groups, does the difference in scores result in different placement levels?

Placement at UW Campuses

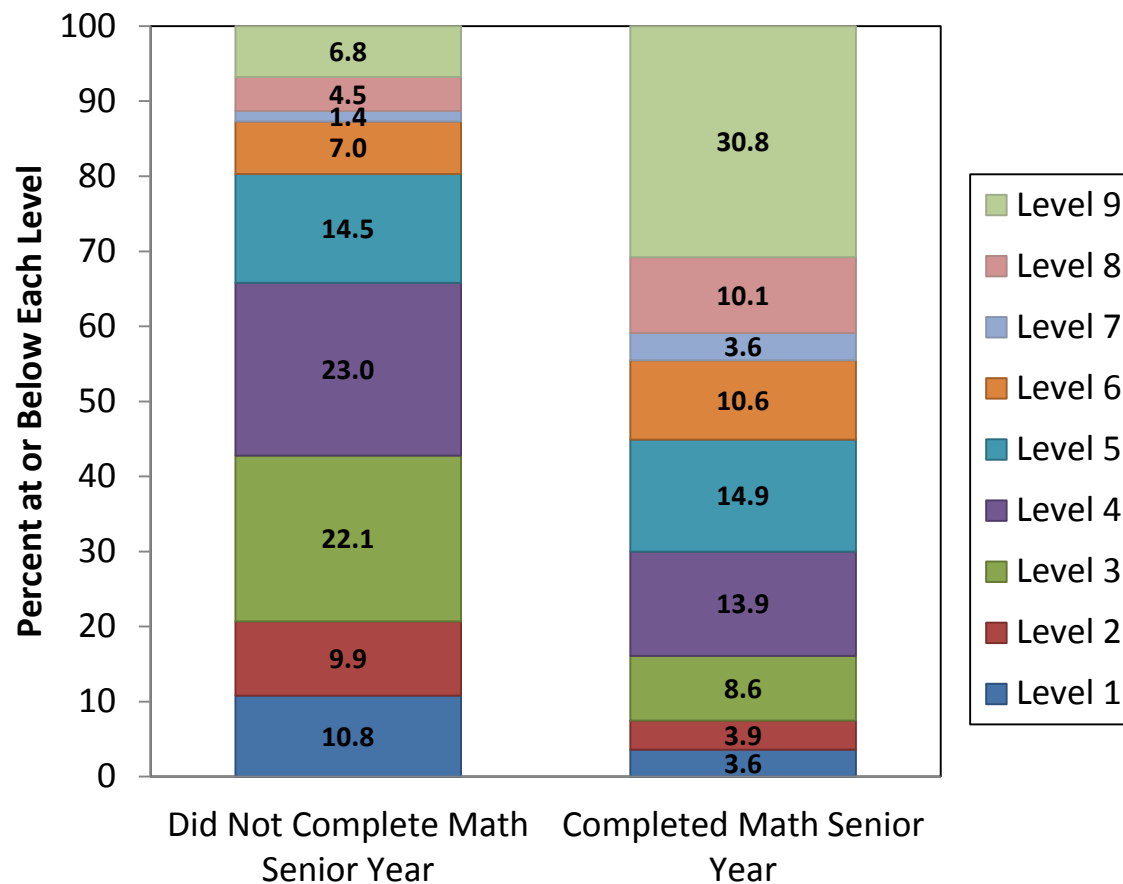
- On most UW-System campuses, a combination of the three math placement test scores is used to place students into an appropriate mathematics course.
- Different cutscores are used across campuses to place students
 - This makes it difficult to know if the observed score difference results in higher placement levels for students who completed math their senior year.
 - First we must convert scores over to a common scale.

The EMPT Scale

- Students' math placement test scores were converted to the scale used for the Early Math Placement Tool (EMPT)
 - Students earn a placement level ranging from 1 to 9
 - In general, Levels 1 and 2 indicate placement into developmental level math at most UW institutions
 - Level 9 corresponds to calculus placement



Placement Levels



Note. Levels 1 and 2 correspond to developmental placement. Level 9 corresponds to Calculus placement.

Question #2: Results

- Approximately 21% of students who did not take math during their senior year placed into a developmental level math class.
- In comparison, only 7.5% of students who took a senior year math class placed into a developmental math class.

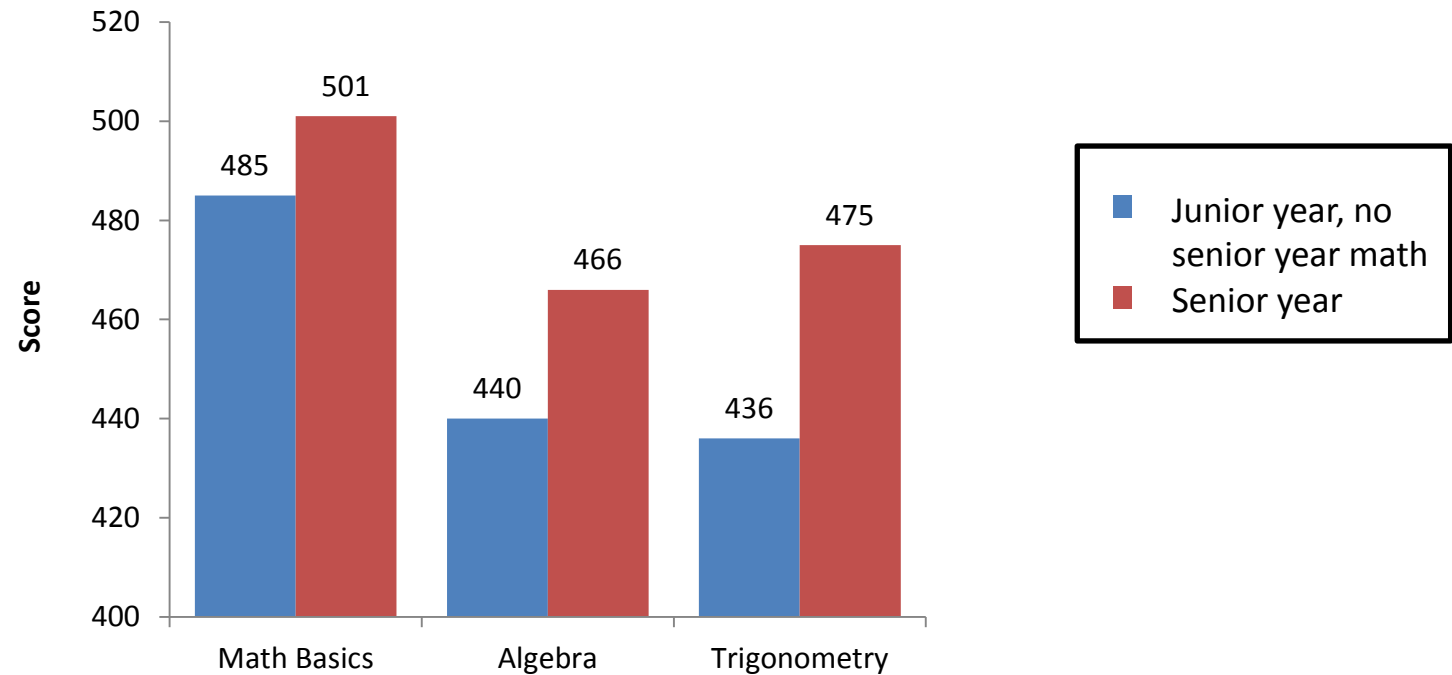
Question #2: Results

- Approximately 31% of students who took senior year math received a calculus placement, compared to only 6.8% of students who did not take senior year math.

Research Question #3

- Do math skills regress for students who do not take math during their senior year of high school?
 - A subset of math classes were investigated.
 - Trigonometry, Precalculus, Algebra II
 - Students who took a particular math class their junior year and no math their senior year, were compared to students to took the same math class during their senior year.

Placement Scores by Highest Math Course: Trigonometry

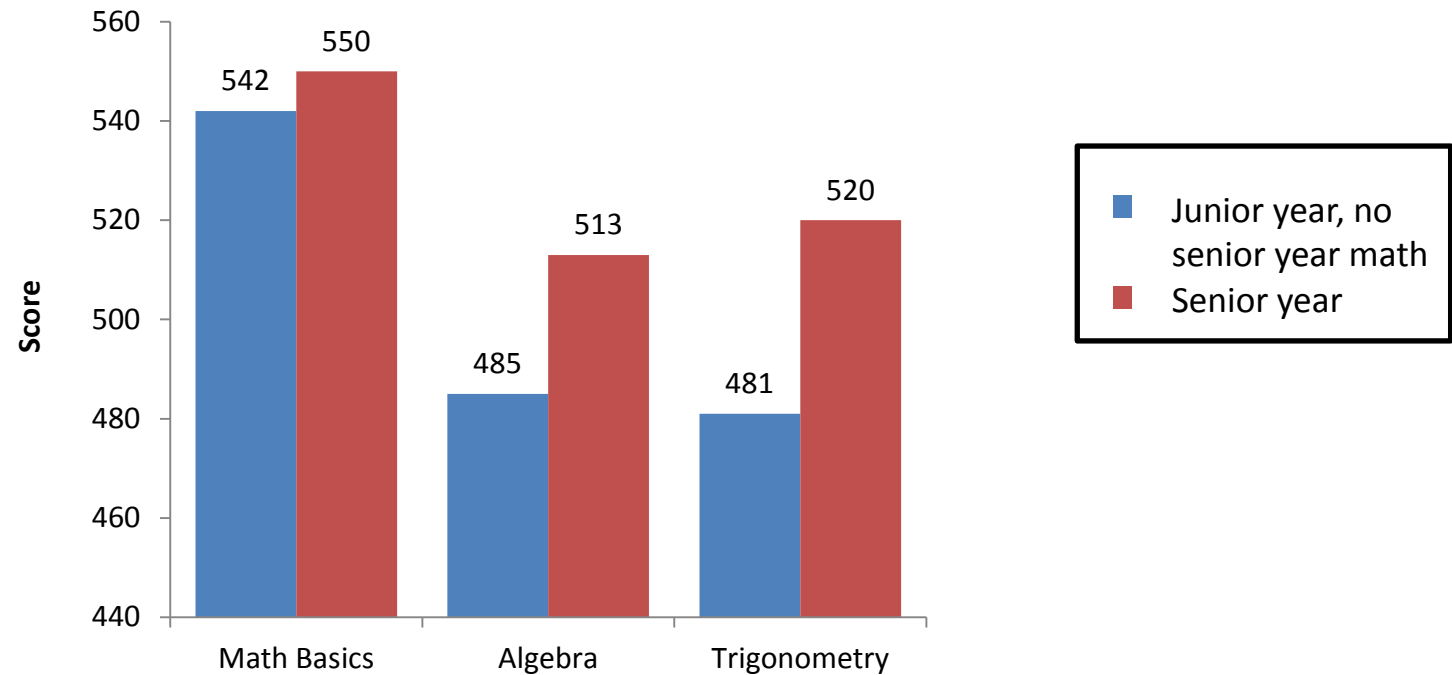


Results: Trigonometry

- Students who took Trigonometry their junior year of high school and no math their senior year scored significantly lower on all three sections of the math test when compared to students who took Trigonometry during their senior year of high school.
 - On average, this difference results in placing .63 placement levels lower (using the EMPT scale) for students who stopped taking math junior year.
 - The largest difference was on the trigonometry section.



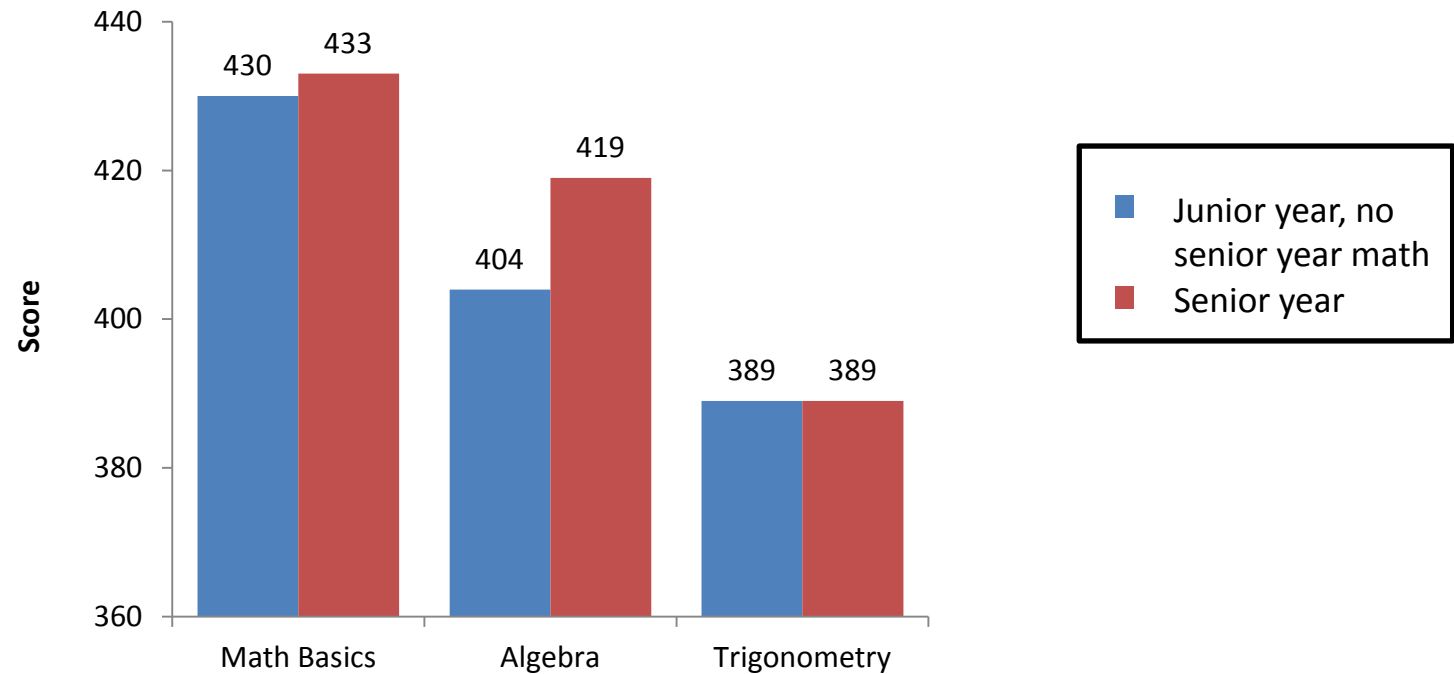
Placement Scores by Highest Math Course: Precalculus



Results: Pre-Calculus

- Students who took Precalculus their junior year of high school and no math their senior year scored significantly lower on all three sections of the math test when compared to students who took Precalculus during their senior year of high school.
 - On average, this difference results in placing .70 placement levels lower (using the EMPT scale) for students who stopped taking math junior year.

Placement Scores by Highest Math Course: Algebra II



Results: Algebra II

- Students who took Algebra II their junior year of high school and no math their senior year scored significantly lower on only the Algebra section of the math test when compared to students who took Algebra II during their senior year of high school.
 - In general, however this did not result in a different placement level.

The Impact of Academic Rigor

Course/Year	Math Basics	Algebra	Trigonometry
Trigonometry/ junior year, no senior year math	485	440	436
Pre-calculus/junior year, no senior year math	542	485	481
Algebra II/senior year	433	419	389

Students who did not complete senior year math, but took either Precalculus or Trigonometry during their junior year, scored higher on all three sections of the MPT than students who took Algebra II course during their senior year.



Conclusions

- The results of this study provide evidence in support of students taking a senior year math class.
- In general, students who take math during their senior year of high school score higher on all three sections of the math placement test and place into higher level math courses than students who did not take math their senior year.

Conclusions

- The effect of not taking a math course during one's senior year varies depending on the specific course.
 - While we saw differences between juniors and seniors for all three courses shown, the size of the difference varied by course.

Thank You!

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