

CSU/UC Mathematics Diagnostic Testing Project



Informing and Implementing an Equitable Course Enrollment Policy

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WELCOME

**Please open the chat and say hello or let us know who you are
We welcome your emerging questions**



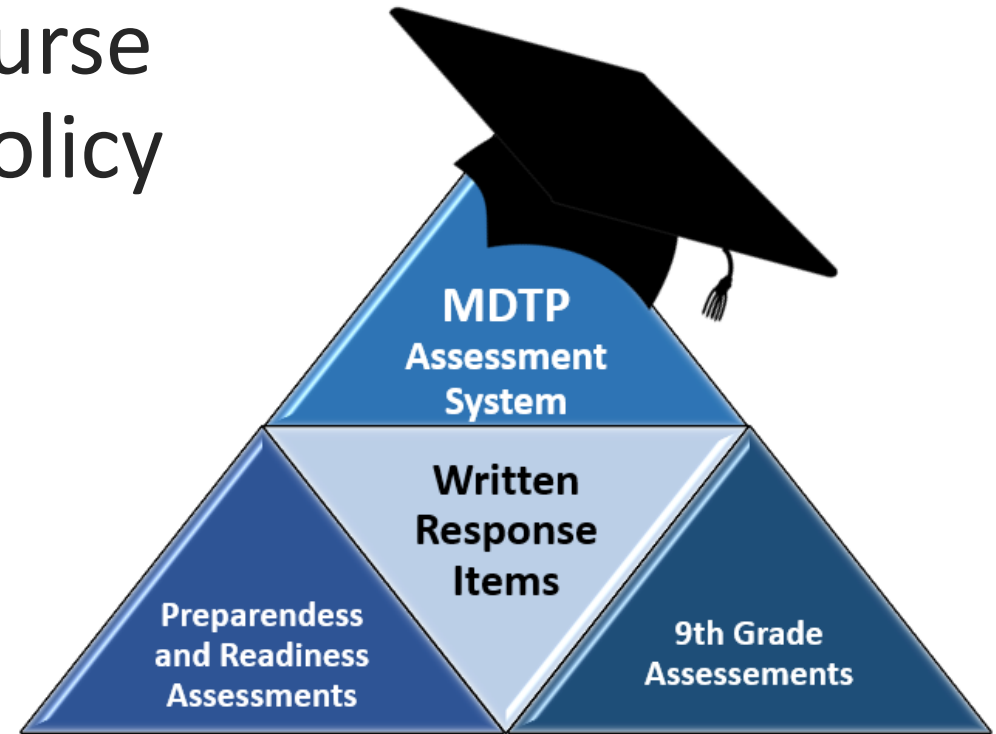
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Please add questions to the chat at any time

Q & A session to follow
Moderators
Carol Treglio & Pat King

Equitable Course Enrollment Policy



The California Mathematics Placement Act of 2015 (SB-359)

All educational bodies with students entering grade 9 must enact “***a fair, objective, and transparent*** mathematics placement policy” (SB-359, 2015) to include:

- A systemic practice using multiple objective academic measures: “statewide mathematics assessments, including interim and summative assessments authorized pursuant to Section 60640, ***placement tests*** that are aligned to state-adopted content standards in mathematics, classroom assignments and grades, and report cards” (SB-359, 2015)
- At least one placement checkpoint during the first month of school

Rationale for SB-359

- Student preparation and achievement in math is paramount to success in college and career, especially in STEM fields
- Student success hinges on appropriate math course enrollment during middle and high school years
- 9th grade math course is “a crucial crossroads” for future educational success (SB-359, 2015)
- Enrollment in an inadequate course results in students who are less competitive for college admissions and happens disproportionately more with successful students of color

Informing Course Enrollment vs. Readiness

- Type of assessment
- Objective of the assessment
- Consequences in the outcome of the assessment

	Type	Objective	Outcome
Informing Course Options	Summative	To learn if students can succeed in the next level of math	High stakes*
Readiness Assessment	Formative	To learn about student understanding, pedagogical practices, and program enhancement	Low stakes

Remote Testing during Distance Learning

- MDTP grade-level and course-level diagnostic assessments will be available for remote use during distance learning
- The diagnostic results should be *used formatively* to
 - understand students' strengths and areas of unfinished learning
 - inform instruction and potential interventions
 - inform next-course readiness and measure program growth
 - inform content for professional learning

Remote Testing to Inform Next-Course Enrollment

- MDTP requests that when possible, certified educators conduct a virtual session in Zoom, Google Hangouts, or any analogous platform where they can proctor the online testing sessions
- **If MDTP results are used to inform next-course enrollment, they must be used as one of multiple measures**
- When MDTP tests are taken remotely, the validity and reliability of the measure may be compromised. Therefore, MDTP results should always be used as one of multiple measures to inform next-course enrollment

Using MDTP Tests to Inform Next-Course Enrollment Options

MDTP recommends that educators

- Adhere to Criterium #1 of SB-359: “***fair, objective, and transparent***”
 - Use multiple measures
 - Apply equitable criteria systematically for all students
- Use *MDTP’s Six Guidelines to Inform Next-Course Enrollment Options* to inform the design of an equitable policy

#1 Use Multiple Measures

Avoid using cut-scores as the primary criterion for placement

- Example from one district: “Multiple Filters”
 - Student achievement: course grade, end-of-course exam scores, and MDTP
 - Student effort and work habits: homework, attendance, and citizenship
 - Teacher recommendation

#2 Use Total Score and Topic Scores

Avoid using cut-scores as the primary criterion for placement

- Example from one district using the HS (now replaced by the AMR)
 - Qualifying Achievement (meets at least one of the following)
 - Answered at least 70% of the questions correctly, OR
 - Answered correctly 3 questions out of 5 for Integers, 2 questions out of 4 for Exponents & Square Roots, AND 3 questions out of 6 for Linear Equations & Inequalities
 - Near Qualifying Achievement
 - Answered correctly 3 questions out of 5 for Integers OR 3 questions out of 6 for Linear Equations & Inequalities

#3 Give Students Feedback

- Provide students with diagnostic feedback about their preparation for a course
 - Diagnostic feedback is an important part of any process to inform course enrollment options
 - Allows students information needed to advocate for remediation prior to enrollment

#4 Create Supports and Provide Options

- Create supports and options for students close to cut-scores such as corequisite coursework or data-focused tutoring
 - Allow students who are at the high end of a qualifying score to enroll in the higher course
 - Support students who are at the low range of a qualifying score
- Successful support programs allow lower cut scores and enroll more students into an appropriate course

#5 Enlist Local Experts

Use local experts to determine cut scores or score ranges

- Teachers and content experts familiar with the course content should determine the initial cut scores or score ranges
 - Collaboratively look at the measure and determine which questions are mandatory that students know (“need to know”) and which questions are not
- Consult the ETS publication: *A Primer on Setting Cut Scores on Tests of Educational Achievement* (Zieky & Perie, 2006) for guidance on setting cut scores

#6 Evaluate your Measure

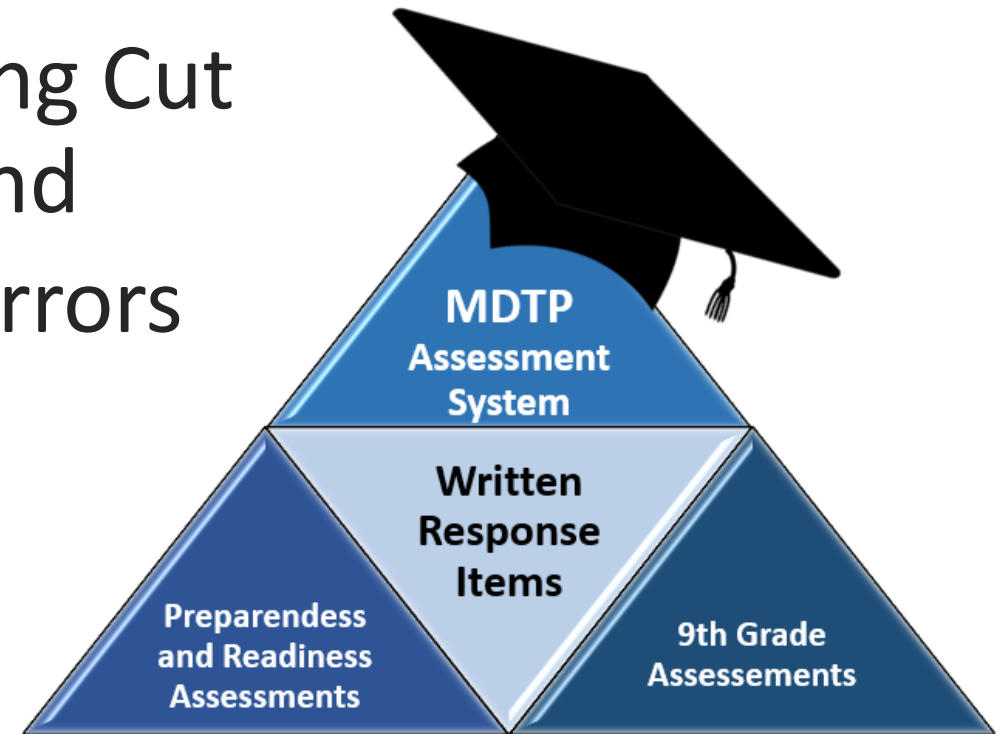
Evaluate how well the course enrollment policy is working and adjust as needed using these steps:

1. Analyze the relationship between enrollment decisions and subsequent course performance
2. Adjust your policy as indicated by data analysis
3. Conduct annual analyses of the measures for each course

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Understanding Cut Scores and Statistical Errors



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Observed Score vs. True Score

- The observed score is the score the student earns on a test or measure
- The true score is the expected value of the score if the student could take the test many times
- We can think of the observed score as the sum of the true score and a random error

False Negatives and False Positives

There are two types of errors that arise when cut scores are used to classify students (e.g. enroll them in a certain course or not)

- A false negative occurs when the observed score is below the cut score, but the true score is at or above the cutoff
- A false positive occurs when the observed score is at or higher than the cut score, but the true score is lower than the cutoff

Expected Errors

- Errors occur when using cut scores
 - No test can be perfectly reliable or valid
 - No method of setting cut scores is perfect
 - Scores themselves have some randomness
- Errors are more likely to occur when classifying students who score near the cut score

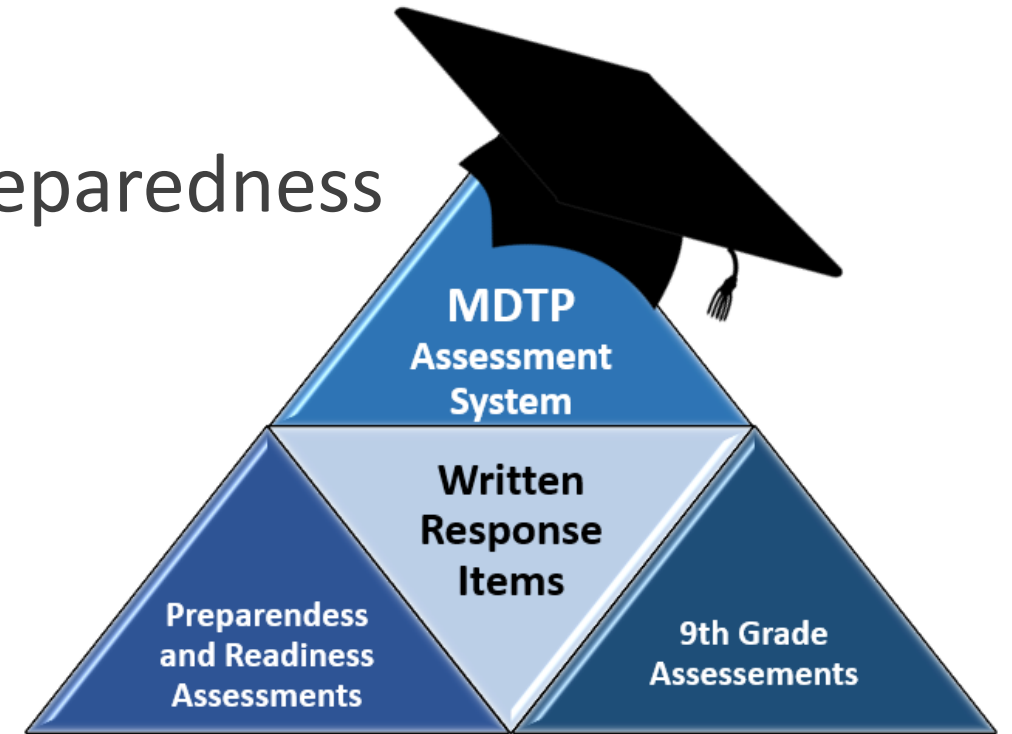
Anticipate and Plan for Potential Errors

- Determine your policy around the relative harm of false negatives vs. false positives
- Adjusting the cut score up or down to reduce one type of error will increase the chances of making the other
 - If you want to reduce false negatives, consider lowering the cut score
 - If you want to reduce false positives, consider raising the cut score
- Always consider ***multiple measures***, especially for students whose score is near the cutoff

The MDTP Assessment System

FREE!

- ❖ MDTP Grade-level Assessments of Preparedness
- ❖ MDTP Course-level Readiness Tests
- ❖ MDTP 9th Grade Assessment Tests
- ❖ MDTP Written Response Items



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