

Designing Your MMA Placement System

Key decisions must be made during the design of MMA systems on (1) what measures to use and (2) how to combine the various measures to arrive at a placement decision for each student.¹ Ultimately, exemptions, waivers, and decision rules will almost always be preferable in terms of both costs and effectiveness to more complicated systems.

Commonly Used Measures

Colleges have many choices of measures and typically select them based on their predictive validity, availability, ease of use, and cost. The [primary options](#) used by colleges are listed in Box 1: traditional placement tests, other assessments and questionnaires, high school transcript information, and standardized test results. There is [strong empirical evidence](#) that high school GPA is one of the best available predictors of college success. One advantage of high school GPA is that it is an aggregate measure of performance over multiple years, unlike a one-time assessment. It reflects not only content knowledge but also behaviors, such as attendance and participation, that influence success in college. Previous coursework from high school or college transcripts may also have some value in placement decisions. While coursework has not been found to be as predictive as high school GPA, it can be used in combination with GPA to address concerns about subject-specific knowledge.

Noncognitive assessments, such as the Learning and Study Strategies Inventory (LASSI), ACT Engage, and the Grit Scale, have the potential to take into account some of the other factors that influence college success, such as motivation and problem-solving skills. While there is research showing that some noncognitive assessments are predictive of success in college courses, the evidence is less strong than the evidence for high school GPA. CAPR research on the LASSI motivation scale does not indicate that such measures add much to the predictive utility of high school GPA, but if used to allow more students into college-level courses their first semester, they may still have some benefit.

¹ For more detail, read [Toward Better College Course Placement: A Guide to Launching a Multiple Measures Assessment System](#).

Box 1: Primary Options for Assessment Measures

MEASURES ADMINISTERED BY THE COLLEGE

- Traditional placement tests (such as ACCUPLACER) that measure students' math, reading, and writing skills
- Noncognitive assessments
- Writing assessments
- Questionnaires (may include self-reported high school transcripts)

MEASURES OBTAINED FROM OUTSIDE THE COLLEGE

- High school grade point average (GPA)
- Other high school transcript information (courses taken, course grades, class rank, years since graduation)
- Standardized test results (for example, ACT, SAT, Smarter Balanced, or PARCC assessments)

Box 2: Costs of an MMA Placement System

Net cost increase above previous placement system for each student going through the placement process.

	SUNY Algorithm-Based System	Minnesota/Wisconsin Decision Rule System
Start-up costs per student	\$140	\$48
Continuing costs per student	\$40	\$33

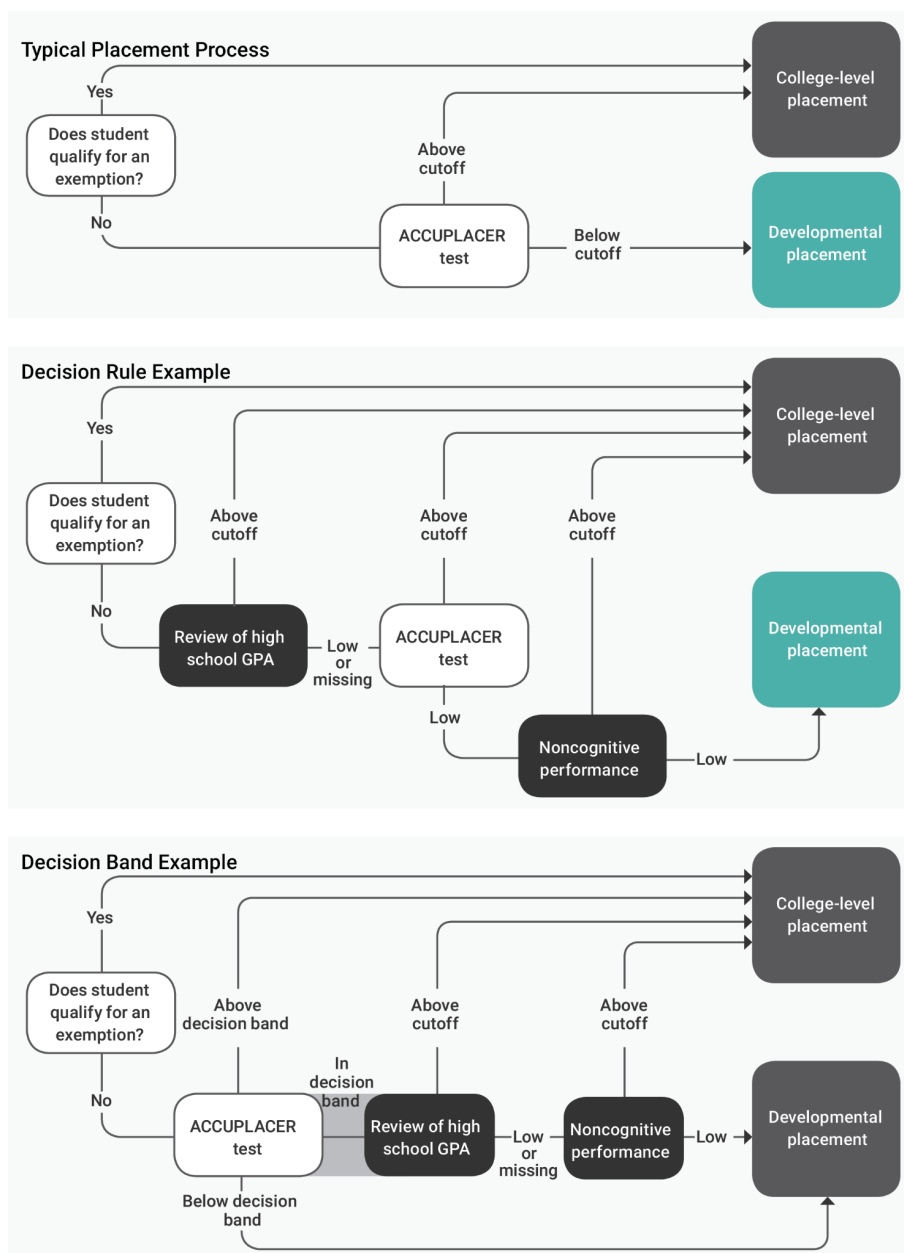
Sources: [Who Should Take College-Level Courses? Impact Findings From an Evaluation of a Multiple Measures Assessment Strategy](#); [Increasing Gatekeeper Course Completion: Three-Semester Findings from an Experimental Study of Multiple Measures Assessment and Placement](#)

Placement System Options

Once the measures have been selected, the information must be integrated in some way to yield a placement for each student in each subject area. Figure 1 shows three examples of placement systems. The top diagram represents what happens at most colleges that do not use MMA: Some students are exempt from the placement process on the basis of standardized test scores or previous course work. Students without exemptions take a traditional placement test such as ACCUPLACER. The middle diagram shows an example of a decision rule system, which takes into account multiple measures (high school GPA and a noncognitive assessment) as well as the placement test; a system may use different measures from those shown in the example

or use those measures in a different order. Finally, the bottom diagram shows an example of a decision band system. Students with placement test scores above or below the band are placed as they would have been in a traditional placement system. Those whose tests fall within the band have their other measures considered. As with the decision rule example, the measures used and their order may vary.

Figure 1: Examples of Placement Systems



While not shown in Figure 1, an algorithm approach would look similar in a simplified diagram to a typical placement process, but the multiple measures algorithm, rather than the ACCUPLACER score, would generate the placement decision. Such models may be somewhat more precise than the decision rules shown here, but considerable historical data preparation and analysis are

necessary to develop an algorithm, and implementation is considerably more complicated than it is for decision rules. Furthermore, algorithms may place some students lower than they would have been placed with a traditional testing system, which has been [found to have a negative impact](#) on their chance of success in gatekeeper courses.

Whatever method is used, some colleges treat the result as guidance rather than a final placement and allow students to make their own decisions about what courses to enroll in based on the information (known as directed student self-placement). Box 3 summarizes the placement system options.

Box 3: Placement System Options

EXEMPTIONS OR WAIVERS

Students are placed directly into college-level courses without the need for placement testing if their scores on specified tests or other measures exceed a certain threshold.

DECISION RULES

As shown in the middle panel of Figure 1, a sequence of rules compares each selected measure to a threshold in a predetermined order. If the threshold is met for placement into a college-level course, a placement is generated; if not, another rule is applied.

DECISION BANDS

As shown in the bottom panel of Figure 1, decision rules apply only to students who fall within a certain range on a specified indicator (such as high school grade point average or a placement test score), usually just below the cutoff.

PLACEMENT FORMULA (ALGORITHM)

An algorithm applies a weight for each of various factors based on an analysis of historical data to calculate the probability of success in college courses and generate a recommended placement.

DIRECTED SELF-PLACEMENT

Directed self-placement can be used in conjunction with any of the above methods, or on its own. When this is used with another method, the student is told of the generated placement but given the option to enroll in either developmental or college-level courses. In a system where no definitive placement is given, the student has a conversation with the advisor or counselor about test results, prior courses, and grades, and selects preferred courses. There is a wide range of models but a lack of causal evidence on them [in the literature](#).

Ultimately, exemptions, waivers, and decision rules will almost always be preferable in terms of both costs and effectiveness to more complicated systems.

Planning Your Placement System

College institutional research departments should begin by looking for any historical student data on the measures being considered. Did students with a high school GPA above a certain threshold perform better than others? A good starting place for these analyses of high school GPA is the grade deemed acceptable in college-level courses. For example, the data may indicate that nearly all students who earned a C or better in a college-level course received at least a C+ average in high school. See the tool [What to Look for in Your Institution's Data](#) for more information.

In the absence of college data, prior research can be a guide. Decision rules used in [California](#) and [North Carolina](#) have consistently set high school GPA cutoffs in the 2.5 to 3.0 range, based on extensive research. (In those states, when students enroll in college directly from high school, eleventh-grade GPA is used if twelfth-grade GPA is not yet available.) While the most accurate source is the high school transcript, [research from California](#) found that students self-reported high school GPA reliably.

For measures with less data or research backing them up, the college may want to begin collecting data on a trial basis to learn more about how they correlate with student outcomes. Both the predictive value of the measure and the feasibility of obtaining the data will need to be taken into account, as well as logistical considerations such as cost and time required for testing. Selected faculty and staff members should have a chance to weigh in on how such measures might be used.

Once measures are selected, colleges will need to determine their order in the placement structure and the cut scores for each measure. The following steps may help determine how to combine the measures:

- Create a diagram of the college's current system of placement for each subject, including all exemptions or waivers, as in the top panel of Figure 1. Create a diagram incorporating the new measures, showing the order in which the measures will be considered and the decision rules that will apply (see Figure 1 for options).
- Take time to consider, with faculty members, the cut scores that are most likely to increase student success. Think further about how the cutoffs used may change the number of students in each course.
- Repeat the process as necessary to cover all programs at the college and their prerequisites.
- Review the new rules with key constituencies on campus and make adjustments as needed.

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