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Multiple Measures Update

February 2, 2016

Statistics and General Math Issue

- Based upon feedback from colleges, minimum mathematics courses were added as additional rules
  - But not in and of themselves sufficient for placement
  - Algebra I was added for Statistics and General Math placements as a floor
- The MMAP rules are only changing the weights that colleges' multiple measures use in assessment to follow the evidence of what predicts success in the courses - nothing else.
- As always, colleges continue to have full discretion in which of these rules they do or do not use

Decision rules for non-STEM, transferable math courses

Level	Direct Matriculants (Up through 11th grade)	Non-Direct Matriculants
General Education Math	HS 11 GPA >=3.3	HS 12 GPA>=3.2 (or) HS 12 GPA>=2.9 AND Stat C (or better)
Statistics	HS 11 GPA >= 3.0 (or) HS 11 GPA >= 2.3 AND Pre-Calculus C (or better)	HS 12 GPA >= 3.0 (or) HS 12 GPA >= 2.6 AND Pre-Calculus C (or better)

* Minimum final HS course level necessary but not sufficient for placement is Alg I with a C or better

Responding to concerns of CAISC

- Reviewed models, concerns and discussed recommendations with MMAP work group
- Reviewed success rates of students who took statistics who had complete high school records by:
  - Their highest level math course and
  - Whether or not they met the MMAP criteria above

Success Rates: Statistics Course

Table 1. Students in sample as a function of highest math course taken in HS and whether or not students met the criteria in the MMAP decision rules

Highest Math taken in HS	Any	Higher than Algebra 2	Algebra 2	Algebra 1	Neither prereq met
All students	22,403	10,840	8,476	2,435	652
MMAP statistics placement (or higher) rules met	16,419	10,482	5,072	703	167
MMAP statistics placement rules not met	5,984	358	3,404	1,732	485

Success Rates: Statistics Course

Table 2. Success rates of students in sample as a function of highest math course taken in HS and whether or not students met the criteria in the MMAP decision

Highest Math taken in HS	Any	Higher than Algebra 2	Algebra 2	Algebra 1	Neither prereq met
All students	69%	79%	63%	49%	49%
MMAP statistics placement (or higher) rules met	77%	80%	72%	60%	74%
MMAP statistics placement rules not met	48%	47%	50%	44%	41%

Success Rates: GE Math Courses

Table 3. Students in sample as a function of highest math course taken in HS and whether or not students met the criteria in the MMAP decision

Highest Math taken in HS	Any	Higher than Algebra 2	Algebra 2	Algebra 1	Neither prereq met
All students	6005	2421	2478	886	220
MMAP GE placement (or higher) rules met	3010	1752	1087	143	29
MMAP GE placement rules not met	2995	669	1391	743	191

Success Rates: GE Math Courses

Table 4. Success rates of students in sample as a function of highest math course taken in HS and whether or not students met the criteria in the MMAP decision

Highest Math taken in HS	Any	Higher than Algebra 2	Algebra 2	Algebra 1	Neither prereq met
All students	69%	77%	67%	54%	52%
MMAP GE placement (or higher) rules met	80%	82%	79%	70%	86%
MMAP GE placement rules not met	58%	62%	59%	51%	47%

MM Work Group Recommendation

- Unanimous that following the evidence is the best approach
  - Evidence points to students meeting MMAP criteria as likely to succeed
- Revisit issue in late Summer when more data is available
- Current Recommendation:
  - Provide pilot colleges with the decision rules based coupled with the evidence for the use of Algebra 1 or Algebra 2 as an additional decision rule
  - As is always the case, provide information to colleges to make best local decisions
  - Remember, we are still in a pilot