

Departmental Goals and Assessment Plans 2016 – 2017

Department Name: ___Testing Services___

Departmental Goals for 2016-2017(not all of these have to be assessed)

1. Work closely with the Assessment/Placement committee to stabilize cut scores for Math and English
2. Work closely with Academic Online Testing to explore distance proctor options
3. Continue working to re-establish presence of an Academic Advisor in Testing Services
4. Develop a training manual for new staff

Project (Assessment) Title: 2016-2017_ 2016 – 2017 Comparing Student Success Using Old and New Math Cut

Strategic Goal

Increase student completion and improve transfer preparation and pathways

Methodology (Plan/Timeline/Method): In Spring of 2016, the Math Department of Salt Lake Community College changed the cut scores in the Math section of the Accuplacer test in order to place students in a math class appropriate to their major course of study.

Approximately a year has gone by since the institution of the new cuts and the Testing Services Director was interested in seeing if there have been changes in placement numbers and grades obtained, particularly for the Math 1010 and Math 1030 classes. These two classes essentially changed places on the placement matrix.

Accuplacer score reports were run for students placing into Math 1010. Students were identified only by S number.

- Between 1 January 2015 and 30 March 2015, 727 students scored 55 or above on the Elementary Algebra section of the test.
- Between 1 June 2016 and 30 July 2016, 279 students scored 40 or above on the College Level Math section of the test.

Accuplacer score reports were run for students placing into Math 1030. Students were identified only by S number.

- Between 15 January 2015 and 30 March 2015, 424 students scored 40 or above on the College Level Math section of the test.
- Between 1 June 2016 and 30 July 2016, 1279 students scored 60 or above on the Elementary Algebra section of the test.

Additionally, the Director also noted that many of the 2016 students scoring into the 1030 range actually took Math 0980. Those students were also studied.

Each student was checked in Banner to determine whether or not they had registered, enrolled in a math class (and if so, which math class), what grade they had received, or enrolled in classes other than math.

Results/Findings

OUTCOMES:

Looking at placement percentages for all math classes, sharp differences in the “before” and “after” numbers/percentages are immediately apparent.

Before the cuts were instituted in May of 2016, the placement percentages of students in Math 0900 and 0950 had remained fairly constant over time. Looking at results from 2014, 2015, and pre-change 2016, the percentages of students placing into these classes had remained consistent for Math 0900 at between 19 and 20%. Students placing into Math 0950 had varied slightly between 24 and 27%.

After the cut score change, both of these classes experienced sharp drops in their enrollment percentages. Math 0900 dropped from a high of 20% to 13.85%. So far in 2017, that enrollment percentage has continued to drop. It stands at 12.31% as of 5/19/2017. The change for Math 0950 was even more precipitous. Placement in the class dropped from a high of 27% of students testing in 2013, to 15.6% immediately after the cut change in 2016. So far, in 2017, the downward trend has continued with only 13.9% of testers placing in Math 0950.

Math 0990 was extant before the cut change, with a placement rate of between 4 and 5%. This class was replaced by Math 0980 at about the same time as the cut and the placement percentages changed drastically. In 2016, after the cut change, the placement rate skyrocketed to 27.5%. In 2017 (YTD 5/19) the percentage has gone up to just over 28%. This does not take into account the numbers of students who actually score high enough to place in Math 1030 or higher, but choose to take Math 0980 as a prep class for Math 1010.

The placement percentages for Math 1030 have also changed drastically. Before the cut, students needed to score into the College Level Math section of the Accuplacer and score at least a 40 (out of a possible 120) to place into Math 1030. This led to a placement percentage of only about 4%. With the cut change, students only had to score into Elementary Algebra and achieve a score of 60 (out of a possible 120) to place into Math 1030. This increased the placement percentage to 32.5%.

Math 1010 was the class that “swapped places” with Math 1030. Before the cut change, students had to score only into the Elementary Algebra section of the test and achieve a score of 55 (out of 120 possible) to place in Math 1010. This led to fairly stable placement percentages varied slightly, between 35 and 41%. After the cut change, students had to score into the College Level Math section and score a 40 or higher. This led to a drastic drop in placement percentages to 4.27%.

The chart on the next page summarizes these changes.

| Math class placement percentages 2013 2014 2015 | | | | | | | |
|---|--------|--------|--------|---------------|--------------|-----------|--|
| Class | 2013 | 2014 | 2015 | 2016 | 2016 | 2017 | |
| | | | | before change | after change | thru 5/19 | |
| 0900/0920 | 19.30% | 20.37% | 20.10% | 16.14% | 13.85% | 12.31% | |
| 950 | 27% | 24.64% | 26.80% | 22.02% | 15.66% | 13.97% | |
| 990/0980 ac | 4.60% | 5.16% | 5.10% | 3.46% | 27.51% | 28.36% | |
| 1010 | 37.90% | 41.99% | 35.89% | 41.90% | 3.84% | 4.27% | |
| 1030 | | | 4.00% | 4.86% | 31.23% | 32.46% | |
| 1040 | | | 1.80% | 2.65% | 1.82% | 1.70% | |
| 1050 | 8.00% | 5.59% | 1.40% | 1.84% | 1.36% | 1.49% | |
| 1060 | 2.35% | 1.72% | 2.29% | 3.38% | 2.33% | 3.11% | |
| 1080 | | | 1.89% | 2.90% | 1.88% | 1.78% | |
| 1210 | 0.65% | 0.51% | 0.51% | 0.86% | 0.52% | 0.54% | |
| Total students | 13,659 | 13,910 | 15,655 | 4,795 | 10,850 | 2,412 | |

The only other class to change placement percentages was Math 1050. Although this class never had a high percentage of students placing into it, it did have a high of 8% in 2013. Since then the placement rate has gone down to only 1.5% of students placing directly into the class.

The placement rates for the other, higher classes have remained fairly stable across time. Few of the College incoming students score high enough to place into these classes.

MATH 1010 AND MATH 1030

As mentioned above, the Math 1010 and Math 1030 classes essentially “swapped places” during the cut change. This led to a question of whether the grades of students had been positively or negatively impacted by the change.

| Math 1010 1 January 2015 - 31 March 2015 | | | | | | | |
|--|--------------|--------|--------|--------|--------|---|--|
| Elementary Algebra Score 55 or above | | | | | | | |
| SCORE | A | B | C | D | E | W | |
| 55 - 59 | 8 | 10 | 6 | 7 | 14 | 2 | |
| 60 - 69 | 17 | 23 | 21 | 14 | 34 | | |
| 70 - 79 | 21 | 24 | 22 | 12 | 25 | | |
| 80 - 89 | 18 | 19 | 13 | 12 | 24 | 1 | |
| 90 - 120 | 3 | 1 | 4 | 1 | 1 | | |
| | 18.76% | 21.56% | 18.48% | 12.88% | 27.40% | | |
| No Math | 267 | 36.72% | | | | | |
| Never Registered | 103 | 14.16% | | | | | |
| Total | 727 students | | | | | | |

Above is the grade distribution for Math 1010 using the 2015 cut scores. During the time period from January through March 2015, 724 students placed in, registered for and completed Math 1010. 3 additional students withdrew from the class, for a total of 727 students examined.

The most concerning item from the grade distribution is that a higher percentage of the students received an “E” grade than any other. Taken together, the other grades A through C show a pass rate of nearly 60%, which is fairly good. But that still means almost 40% of the students received a grade of “D” or “E”. If this grade distribution was graphed, it would have a negative skew rather than a normal distribution, which is never a good thing.

While 267 students did not register for any math class in or immediately after the time period examined, this could be because they could not find a math class to fit their schedule. Or, like many students, they intend to put math off until the last thing before they complete their academic work here.

Just over 14% of the 727 student examined have never registered for a class. This is a large number of students who completed the admission process, including testing, but chose not to register. The testing requirement for registration has now been eliminated, but there still must be students who complete the admission process but do not attend. Perhaps a worthwhile study would be an examination of not only why these students didn't register, but what the College could do in the future to save these potential enrollees.

| Math 1010 1 June 2016 - 31 July 2016 | | | | | | |
|---|--------|--------------|--------|--------|--------|--------|
| College Level Math score of 40 or above | | | | | | |
| SCORE | A | B | C | D | E | |
| 40 - 49 | 8 | 10 | 6 | 3 | 3 | 3 |
| 50 - 59 | 6 | 1 | 2 | 2 | 2 | 2 |
| 60 - 69 | 0 | 0 | 0 | 0 | 0 | 0 |
| 70 - 79 | 0 | 0 | 0 | 0 | 0 | 0 |
| 80 and above | 0 | 0 | 0 | 0 | 0 | 0 |
| total | 14 | 11 | 8 | 5 | 5 | 5 |
| | 32.50% | 25.58% | 18.60% | 11.60% | 11.60% | 11.60% |
| Took a different math class | | 93 | 33.30% | | | |
| No Math | | 86 | 30.82% | | | |
| Never registered | | 57 | 20.40% | | | |
| total | | 279 students | | | | |

The above chart shows the distribution of grades obtained by Math 1010 students after the cut-score change. The first thing that is very obvious is that the number of students placing into 1010 has decreased substantially. The number included in this cohort is just slightly more than one-third of the number placing in 1010 the preceding year.

The grade distribution has also shifted. Over 50% of the students received an “A” or “B” grade, which – while not a normal distribution – would graph with a positive skew. The percentage of students receiving either a “D” or an “E” has been cut in half, dropping from 40% to 22%.

Only 15.4% of the students placing into the Math 1010 cut-score range actually took the Math 1010 class. Another third (those who scored higher in the range) took a different math class. Almost another third took other classes that did not include math while one-fifth never registered.

MATH 1030

Math 1030 was the class that “swapped” places with Math 1010. The cut range for placement into Math 1030 actually decreased from requiring the student to score into the College Level Math section of the test, to requiring only an Elementary Algebra score.

| Math 1030 1 January 2015 - 31 March 2015 | | | | | | |
|--|--------|--------|-------|--------|-------|--|
| College Level Math Score 40 and above | | | | | | |
| SCORE | A | B | C | D | E | |
| 40 - 49 | 5 | 9 | 0 | 2 | 0 | |
| 50 - 59 | 1 | 0 | 1 | 0 | 0 | |
| 60 - 69 | 1 | 0 | 0 | 0 | 0 | |
| 70 - 79 | 0 | 0 | 0 | 0 | 0 | |
| 80 - 89 | 0 | 0 | 0 | 0 | 0 | |
| 90 and above | 0 | 0 | 0 | 0 | 0 | |
| Total | 7 | 9 | 1 | 2 | 0 | |
| | 36.80% | 47.30% | 5.20% | 10.50% | 0.00% | |
| Total taking Math 1030 | | | 18 | 4.20% | | |
| Took a different math class | | | 284 | 66.90% | | |
| No Math | | | 84 | 19.80% | | |
| Never Registered | | | 37 | 8.70% | | |
| Total scoring in range | | | 424 | | | |

Above is the chart using the 2015 cut scores. Only 18 (4.24%) of the 424 students scoring into Math 1030 actually took the 1030 class. While their grade distribution is closer to a normal bell curve than any of the others, this graph would have a positive skew.

Two-thirds of the students placing into 1030 class in 2015 took a different math class. Those scoring a 55 or above on the College Level Math section could move into Math 1040, 1090, 1050, 1060, 1080 or 1210, depending on their score and obviously many of them did. Since that was not a focus of this study, those classes/grades were not evaluated.

There were still nearly 20% of those tested who did not register in any math class, but did take other classes. What was not examined in this study was the reason they did not take math. Was it because all the math classes were full because they were registering late in the registration period? Perhaps they couldn't find a math class that fit into the schedule they needed. Or, as has been stated before, perhaps these students have the common fear of math and intend to put it off until the last minute in their scholastic career.

| Math 1030 6/1/2016 - 7/31/2016 | | | | | | |
|---|--------|--------|--------|--------|--------|--------|
| Elementary Algebra Score of 60 and above | | | | | | |
| SCORE | A | B | C | D | E | |
| 60 - 69 | 2 | 6 | 6 | 5 | 14 | |
| 70 - 79 | 8 | 4 | 5 | 2 | 12 | |
| 80 - 89 | 5 | 6 | 4 | 5 | 1 | |
| 90 - 99 | 2 | 6 | 3 | 0 | 1 | |
| 100 - 109 | 2 | 1 | 4 | 2 | 2 | |
| 110 and above | 1 | 1 | 0 | 0 | 0 | |
| | 20 | 24 | 22 | 14 | 30 | 110 |
| | 18.10% | 21.80% | 20.00% | 12.70% | 27.20% | |
| Total students scoring in range 60 and above | | | | | 1098 | |
| total taking Math 1030 | | | | | 110 | 10.00% |
| Total taking a different math class | | | | | 426 | |
| Total taking Math 0980 as their different class | | | | | | 183 |
| Total taking no math | | | | | 393 | |
| Total never registering | | | | | 169 | |

The above chart details the huge change in Math 1030 placement that came with the switch in cut-scores. Almost 700 more students placed in Math 1030 using the new cut-scores that were instituted in May of 2016.

The distribution of “A”, “B”, and “C” grades was fairly even, ranging from 18 to 21%. Unfortunately, the percentage of “E” grades was the highest with 27%. What is interesting is that the most “E” grades were given to those in the two lowest 1030 eligible score categories. This could be because although these students scored into the range, the content of the class differed significantly from the test content. It could be because the students chose not to attend class or complete the work. Without more information and a deeper look, the cause is not immediately apparent.

Only 10% of the total students testing chose to take Math 1030, while 38% took a different class. One-third of the students chose to take no math. As has been discussed before, the reason that students chose to take no math is not a part of this study, but should certainly be looked at. Another study – or possibly another action item – should be a follow-up of the 169 students (15.3%) who never registered for any classes. Here is a group that completed the admissions process, but chose not to come. The questions of “why” and “what can SLCC do to capture this group” should definitely be pursued.

The most interesting part of the study of the current Math 1030 cut-scores was looking at the students who chose to take Math 0980 instead of Math 1030. For most of them, this was because their major

would require them to take Math 1010 or higher, and this was the only way for them to access those higher classes.

| Math 0980 1 June 2016 - 31 July 2016 | | | | | | |
|--------------------------------------|--|--------|-------|-------|--------|-----|
| | Subset of Math 1030 scoring 60 and above | | | | | |
| | Elementary Algebra | | | | | |
| | | | | | | |
| | | | | | | |
| SCORE | A | B | C | D | E | |
| 60 - 69 | 32 | 18 | 4 | 1 | 8 | |
| 70 - 79 | 22 | 11 | 2 | 2 | 8 | |
| 80 - 89 | 23 | 4 | 4 | 3 | 3 | |
| 90 - 99 | 10 | 5 | 1 | 0 | 0 | |
| 100 - 109 | 12 | 3 | 0 | 0 | 3 | |
| 110 - 120 | 3 | 0 | 1 | 0 | 0 | |
| | 102 | 41 | 12 | 6 | 22 | 183 |
| | 55.70% | 22.40% | 6.50% | 3.20% | 12.02% | |
| | | | | | | |

These Math 0980 students, for the most part, did exceptionally well in the class. The majority of them – 78% - achieved either an “A” or “B” grade. This was probably because they were actually taking a class one step below where they placed, but put them on the pathway to the class they actually needed.

CONCLUSIONS

The change in cut-scores and the “swap” of Math 1010 and 1030 scoring ranges has had a very large impact on student placement.

Fewer students are placing in the 0900 and 0950 Math classes.

More students are placing in the Math 0980 class when compared to the previous 0990 class.

This study did not look at the students **placing** into Math 0980, only those students who scored higher than the Math 0980 cut range. All of the students studied actually placed in Math 1030. They have chosen to take the lower class to access the higher level math classes they need for their degree and are passing the Math 0980 class quite successfully.

The failure rate in the Math 1010 class has decreased significantly since the cut-score range was increased. The number of students successfully passing the class has increased.

The failure rate in the Math 1030 class has increased significantly since the cut-score range was lowered. The reason for this is not clear and needs more investigation.

The reason for many students not taking a Math class is unclear, and needs more investigation. Perhaps the establishment of a “Quick Start”, “Accelerated Learning Program” or “I-Best” type program – which have been established successfully at other community colleges – would be helpful at providing students who are afraid of math or unsure of their skills assistance in improving their skills – and their placement. Other colleges have gained tuition and increased completion rates through the establishment of such programs.

Although the registration requirements have recently been changed to remove testing as a prerequisite for class registration, it remains to be seen if this will change the number of students going through the admission process but never registering for classes. If there is not already a protocol in place to follow up with these students and determine why they have decided not to attend, the College should look at developing one. At the very least, perhaps phone calls could be made to these students to find out their reasons for non-registration, and offer assistance if possible. Many of the students who come to Testing Services to complete their GED test tell test administrators that they want to come to college, but can't afford it. They know nothing about financial aid programs or the SLCC promise. Perhaps the students who do not register for classes also need this information and supplying it to them would increase enrollment.