Report on the Determination of Accuplacer Scores

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Des Moines Area Community College

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Background, Purpose, and Objectives

Des Moines Area Community College
Report on Determination of Accuplacer Scores, July 2016
Committee: Sharon Bittner, Director; Katy Hanus, Coordinator; Dan Nelson, English Professor; Rob
Reynolds, Math Professor; Marshall Stuart, Math Professor

Des Moines Area Community College Assessment Tool Decisions

- The Compass admissions assessment tools currently being used by Des Moines Area Community
  College are being discontinued by ACT at the end of this year. Compass will be replaced with
  Accuplacer, a College Board product.
- Once the replacement occurs, reading, ESL, and English will be assessed by Accuplacer, and
  ALEKS will continue as the assessment tool for Math.
- The transition to Accuplacer will be completed before 11/30/2016.
- The college will review nationwide information about the development of cut scores, determine
  cut scores, and then provide cut score information to the deans and other DMACC
  administrative persons for approval.
- At the end of the first year’s implementation of Accuplacer, the college will review the scores
  and assess correlational, reliability, and validity outcomes of the placement scores and adjust as
  needed.

Des Moines Area Community College uses assessment of students in Reading and English in three ways:

1. **As a general DMACC admission requirement** for all full-time students that provides information
   about their current skills to be used as a guide for class selection and in selecting developmental
   classes.
2. **As an advising tool** for advisors and others working with students to understand the students’
   knowledge of reading and English to predict if students have needed skills to be successful in
   college and/or if students need to be advised into developmental courses or other advising
   suggestions such as number or credits, etc.
3. **As an acceptance measure** used for admission placement decisions into some Career and
   Technical programs (CTE).

The College Board notes that Accuplacer was developed to be used as a tool along with
other measures to determine a student’s current skills to guide them in class selection in
regards to college readiness. The College Board notes that Accuplacer was not
developed to be used for placement determinations (Morgan & Michaelides, 2005).

The objectives for minimum cut scores at Des Moines Area Community College include two points:

1. **To understand students’ knowledge of reading and English to predict if students have the
   needed skills to be successful in college and to advise course registration based on those scores.**
   - To use these scores to guide the appropriate students toward developmental classes to
     improve skills before taking college classes.
2. **To understand students’ knowledge of reading and English to determine an acceptance measure
   used for admissions placement that indicates the likelihood of success in certain CTE programs,
   such as nursing.**
   - To use these scores to encourage students to register for appropriate classes to increase the
     likelihood of success and graduation.
Committee Activity in Developing Minimum Cut Scores Options

1. Sequence of activities
   - Writing Placement Committee chaired by Shannon McGregor and Lynn LaGrone was formed.
   - Larger committee met and determined that Accuplacer would best serve as the assessment tool for admissions and as an advising tool.
   - A subcommittee was formed to determine next steps.
   - A literature review was completed.
   - Based on information provided by the literature review, two DMACC math professors worked independently to provide data for use to determine minimum cut scores.
   - The committee reviewed the work provided by the math professors.

2. Two sets of independently derived performance measures were completed by Professors Rob Reynolds and Marshall Stuart (pp. 5-6)

3. Clarifying information and discussion were provided by Professor Dan Nelson (p. 7).

4. Committee review of the information resulted in the recommendation noted on page 10.
Method and Results

Population Percentage Conversion Method

This method converts the existing population of DMACC students across categories into Accuplacer score-ranges. This was performed by selecting the integer-ranges with closest percentages using an Accuplacer distribution of scores within a population of students (College Board, 2015). In other words, when 51.45% DMACC students are scoring “college-ready” in Compass over ten years, this approach determined the corresponding score that would retain the same percentage of students within the Accuplacer population sample.

Reading

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Compass Scores</th>
<th>DMACC % (2006 - 16)</th>
<th>Converted %</th>
<th>Accuplacer Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAC Referral</td>
<td>01 - 34</td>
<td>2.10</td>
<td>2.20</td>
<td>20 – 29</td>
</tr>
<tr>
<td>RDG 038</td>
<td>35 - 60</td>
<td>11.98</td>
<td>12.25</td>
<td>30 – 44</td>
</tr>
<tr>
<td>RDG 039</td>
<td>61 - 80</td>
<td>34.46</td>
<td>34.36</td>
<td>45 – 72</td>
</tr>
<tr>
<td>College Ready</td>
<td>80 - 99</td>
<td>51.45</td>
<td>51.1</td>
<td>73 - 120</td>
</tr>
</tbody>
</table>

Thus, the Accuplacer Reading cut scores (that is, the minimum score accepted for placement in the course noted) would be 30 (RDG 038), 45 (RDG 039), and 73 (college-ready).

Writing / Sentence Skills

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Compass Scores</th>
<th>DMACC % (2006 - 16)</th>
<th>Converted %</th>
<th>Accuplacer Scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 060</td>
<td>01 - 37</td>
<td>28.24</td>
<td>28.56</td>
<td>20 - 65</td>
</tr>
<tr>
<td>ENG 061</td>
<td>38 - 69</td>
<td>27.12</td>
<td>26.53</td>
<td>66 - 81</td>
</tr>
<tr>
<td>College Ready</td>
<td>70 - 99</td>
<td>44.63</td>
<td>44.91</td>
<td>82 - 120</td>
</tr>
</tbody>
</table>

Thus, the Accuplacer Sentence Skills cut scores would be 66 (ENG 061) and 82 (college-ready).
Direct Score Conversion Method

This method uses the concordance scores from the West Virginia Department of Education (Ellis, n.d.) to convert Compass score ranges in reading and writing into ranges for Accuplacer Reading and Sentence Skills. After conversion, the expected percentage of national test-takers was computed for each category through the Accuplacer distribution documentation (College Board, 2015). In other words, based on an existing concordance, current DMACC Compass cut scores matched corresponding Accuplacer scores. These scores established cut score ranges within the Accuplacer population sample, and this, subsequently, provided a prediction for a similar distribution within DMACC’s population.

Reading

<table>
<thead>
<tr>
<th>Recommendation</th>
<th>Compass Scores</th>
<th>DMACC % (2006-16)</th>
<th>Accuplacer Concordant Scores</th>
<th>Predicted %</th>
</tr>
</thead>
<tbody>
<tr>
<td>AAC Referral</td>
<td>01 - 34</td>
<td>2.10</td>
<td>20 - 27</td>
<td>1.17</td>
</tr>
<tr>
<td>RDG 038</td>
<td>35 - 60</td>
<td>11.98</td>
<td>28 - 43</td>
<td>12.34</td>
</tr>
<tr>
<td>RDG 039</td>
<td>61 - 80</td>
<td>34.46</td>
<td>44 - 88</td>
<td>60.74</td>
</tr>
<tr>
<td>College Ready</td>
<td>80 - 99</td>
<td>51.45</td>
<td>89 - 120</td>
<td>25.75</td>
</tr>
</tbody>
</table>

Thus, the Accuplacer Reading cutoff scores (that is, the minimum score accepted for placement in the course noted) would be 28* (RDG 038), 44 (RDG 039), and 89 (college-ready).

*Note: A Compass score of 34 is below the lowest concordant score provided; inferences were made based on the distribution of scores.

Writing / Sentence Skills

<table>
<thead>
<tr>
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<th>DMACC % (2006-16)</th>
<th>Accuplacer Concordant Scores</th>
<th>Predicted %</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENG 060</td>
<td>01 - 37</td>
<td>28.24</td>
<td>20 - 65</td>
<td>28.56</td>
</tr>
<tr>
<td>ENG 061</td>
<td>38 - 69</td>
<td>27.12</td>
<td>66 - 89</td>
<td>40.60</td>
</tr>
<tr>
<td>College Ready</td>
<td>70 - 99</td>
<td>44.63</td>
<td>90 - 120</td>
<td>30.84</td>
</tr>
<tr>
<td>COM 703</td>
<td>42 - 99</td>
<td>70.26</td>
<td>70 - 120</td>
<td>65.48</td>
</tr>
</tbody>
</table>

Thus, the Accuplacer Sentence Skills cutoff scores would be 66 (ENG 061) and 90 (college-ready). The cutoff score for COM 703 would be 70.
Inferential Method:

An examination of regional and national Accuplacer cut scores reveals notable differences with the previous approaches to the DMACC population. Although a comparison of DMACC’s population to a large sample of Accuplacer participants yields a reading cut score of 73, institutions nationally tend to set a higher threshold. Further, a population distribution beginning with a previously created concordance produces a cut score higher than the national average. A study conducted for the National Assessment Governing Board noted that the national mean Accuplacer reading cut score for public, two-year institutions sets at 77, while the mean Compass score yields 76 (Fields & Parsad, 2012, p. 24).

Further, the survey reveals that the 25th percentile of two-year public institutions follows a score of 75, the 50th percentile features 78, and the 75th percentile falls at 80. The same percentile distribution of mean Compass cut-off scores exhibits a respective order of 74, 80, and 81. Interestingly, this suggests that DMACC’s use of a high percentile Compass score (81) corresponds to a similar population size that achieved a score in the lower range of Accuplacer standards. In fact, the DMACC population’s corresponding Accuplacer score of 73 falls below the 25th percentile of all institutions surveyed (Fields & Parsad, 2013, p. 21).

<table>
<thead>
<tr>
<th>Exam</th>
<th>25th</th>
<th>50th</th>
<th>75th</th>
<th>Mean</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accuplacer</td>
<td>75</td>
<td>78</td>
<td>80</td>
<td>77</td>
<td>50-106</td>
</tr>
<tr>
<td>Compass</td>
<td>74</td>
<td>80</td>
<td>81</td>
<td>76</td>
<td>20-91</td>
</tr>
<tr>
<td>ACT</td>
<td>17</td>
<td>18</td>
<td>19</td>
<td>19</td>
<td>14-25</td>
</tr>
</tbody>
</table>

An examination of scores set by states and individual institutions suggests a general consensus near the averages calculated by Fields & Parsad (2012, p. 24), although the variations are notable. For reading, Minnesota set a statewide Accuplacer cut-off score of 78 (Minnesota State Colleges and Universities, 2016), while Missouri selected a higher score of 85 (Missouri Department of Higher Education, 2015). Interestingly, across the border from Missouri, Kansas City, Kansas, Community College (n.d.) expects a lower reading score of 75, although the Kansas Board of Regents recommends an even lower score of 69 along with consideration of another measure (Redeker, J, Wiscombe, K., Beene, C., & Christy-Dangermond, S., 2016). Even lower, the state of Massachusetts views an Accuplacer score of 68 as acceptable (Massachusetts Department of Higher Education, 2016). According
to the Iowa Department of Education (2007), within the state, Accuplacer cut-offs range from 66 at Iowa Central Community College (p. 5) and Northeast Iowa Community College (p. 3) to 87 at Western Iowa Tech (p. 7) and 90 at Hawkeye Community College (p. 6).

Writing placement scores, although also varied, tend to remain closer to the results found in the DMACC population comparisons. The Iowa Department of Education (2007) reports that Hawkeye Community College expects a higher level of 98 (p. 6) while Iowa Central Community College anticipates a lower 74 (p. 5) and Western Iowa Tech considers 86 to be suitable (p. 7). Iowa Lakes Community College (2015) expects a 78 in writing as well as in reading. In terms of other states, Kansas City, Kansas, Community College (n.d.) sets a score of 70 as their neighbor, Missouri, expects a notably higher score of 96 (Missouri Department of Higher Education, 2015). Minnesota, along with North Carolina, follows a score of 86 (Minnesota State Colleges and Universities, 2016; Socrata, n.d., p. 128) which remains close to the Ohio and West Virginia expectation of 88 (Socrata, n.d., pp. 147, 194). While they are not large samples, an average of the four Iowa institutions yields a score of 84, and an average of the states outside Iowa produces 85. These two scores fall relatively close to the previous DMACC population comparisons of 82 and 90.

Considering the variety of scores and the lack of a clear, consistent relationship to Compass or ACT cut scores, the presence of a general score range provides a degree of national consensus. Although the scores of 71 or 90 in reading and 82 or 90 in sentence skills are not outside the range of other institutions, DMACC may wish to consider national, average scores and comparable standards within other regional institutions in order to remain consistent with a broadly accepted application of the Accuplacer format.

Notably falling between the two extremes from the previous DMACC Compass comparisons, the national average for Reading suggests a cut score of 77. For Sentences Skills, a survey of regional states around Iowa produces an average score of 85, which also falls between the two results from this report’s first two comparisons.
### Percentage Conversion Method

<table>
<thead>
<tr>
<th>Score Conversion Method</th>
<th>Inferential Method</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Pros</strong></td>
<td><strong>Cons</strong></td>
</tr>
<tr>
<td>Maintains class distribution</td>
<td>Assumes raw scores are desired</td>
</tr>
<tr>
<td>Least direct data reliance</td>
<td>Changes student distribution</td>
</tr>
<tr>
<td>Assumes raw scores are desired</td>
<td>Assumes DMACC % = Nat %</td>
</tr>
<tr>
<td>Uses Accuplacer data</td>
<td>Assumes accuracy of concordance</td>
</tr>
</tbody>
</table>

### Cons

- Assumes percentages are desired
- Changes student distribution
- Assumes raw scores are desired
- Assumes accuracy of concordance
- Perception as "low"
- Perception as "high"

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#### Effective Inclusion of data

- Alaska:
- Independent data
- Uses Accuplacer data
- Most data reliant

#### Perceived

- Effective Inclusion of data:
- Axcess Conversion Method

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### Table A: Summary of Minimal Accuplacer Scores for College-Readiness

<table>
<thead>
<tr>
<th>Two-year Colleges</th>
<th>National Mean</th>
<th>MN Statewide</th>
<th>MO Statewide</th>
<th>KS Statewide</th>
<th>OH Statewide</th>
<th>WV Statewide</th>
<th>WA Statewide</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hawkeye CC</td>
<td>88</td>
<td>69</td>
<td>95</td>
<td>86</td>
<td>N/A</td>
<td>78</td>
<td>N/A</td>
</tr>
<tr>
<td>Kirkwood CC*</td>
<td>90</td>
<td>74</td>
<td>64</td>
<td>56</td>
<td>96</td>
<td>79</td>
<td>69</td>
</tr>
<tr>
<td>Iowa Central CC</td>
<td>66</td>
<td>78</td>
<td>66</td>
<td>78</td>
<td>78</td>
<td>59</td>
<td>79</td>
</tr>
<tr>
<td>Iowa Lakes CC</td>
<td>78</td>
<td>74</td>
<td>78</td>
<td>98</td>
<td>99</td>
<td>N/A</td>
<td>90</td>
</tr>
</tbody>
</table>

*On their website, Kirkwood Community College (2013) presented scores designated only as distance learning guidelines.*

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### Two-year Colleges

- National Mean
- MN Statewide
- MO Statewide
- KS Statewide
- OH Statewide
- WV Statewide
- WA Statewide

---

### Table A: Summary of Minimal Accuplacer Scores for College-Readiness

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<td>99</td>
<td>N/A</td>
<td>90</td>
</tr>
</tbody>
</table>

*On their website, Kirkwood Community College (2013) presented scores designated only as distance learning guidelines.*
Conclusion

Considering the variation of scores nationally and the potential consequences for student progress, the Population Percentage Conversion Method approach of matching DMACC’s current population to the larger Accuplacer sample offers the relative stability of potentially maintaining the school’s current distribution. When using the West Virginia concordance (Ellis, n.d.) in the Direct Score Conversion Method, observers must assume the accuracy, currency, and desirability of the concordance. Analysis suggests the concordance-derived scores may be too high since it is well beyond the national averages and may create a distribution within the DMACC population which is greatly varied from the current expectations. Further, while national and regional averages establish a sense of general trends, the broad variation in scores suggests a level of uncertainty. The scores may reflect local preferences, and the averages are not related to a data sample reflecting student performance.

At this preliminary stage, the committee recommends minimum guidance scores of 73 for reading and 82 for sentence skills since the scores derive from student performance data and maintain a direct connection to a recent performance distribution within the DMACC population. Based on the data, these options will potentially continue the current general placement percentages while avoiding an unintentionally higher barrier for DMACC’s incoming students. Placement scores represent student performance within a range of scores and may not clearly represent student ability over time, particularly when the differences are within a few points. Setting a higher score may prevent progress for students the college regularly placed as college-ready in the past. In fact, to address such concerns, many institutions consider multiple factors along with exam scores to assist in placement. Overall, the recommended cut scores should serve as a reasonable guide while the institution transitions to a new placement process.

Subsequently, relying on the Population Percentage Conversion Method, the preliminary, recommended, minimum Accuplacer scores for college readiness are 73 for Reading Comprehension and 82 for Sentence Skills.

After the institution accumulates a year of data on Accuplacer performance, DMACC should review student performance and placement distribution in order to adjust cut scores if the results do not meet institutional expectations and needs. Adjustments could include adapting new score levels, creating acceptable placement ranges, and using scores in connection with multiple measures.
References


Socrata. (n.d.) *Cut off scores by state*. Retrieved from *Getting Past Go at* https://gettingpastgo.socrata.com/api/views/8pvt-5hk7/rows.pdf?accessType...