

The Joint Use of ACT® Scores and High School Grade Point Average for Predicting Success at Community Colleges

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ACT has encouraged institutions to use multiple measures for placing students into college courses, whether the institutions used ACT Compass test scores (ACT, 2006; 2008; 2012) or subject area test scores from the ACT test (ACT, 2007; 2014). Previous studies have reported that test scores and high school grade point average (HSGPA), when used together, provide more information than either measure used alone (Noble, Schiel, & Sawyer, 2004; Sawyer, 2010; Scott-Clayton, 2012). Specifically, the use of multiple measures often results in stronger predictive relationships with course grades and increased classification accuracy. Improved classification accuracy has important implications for institutions, especially at community colleges where large percentages of students enter college academically unprepared and require remediation (US Department of Education, 2013). Placement systems are put into place to help institutions match students to courses that are instructionally appropriate to their academic preparation level with the ultimate goal of maximizing students' likelihood of future success. Using multiple pieces of information can result in more informed placement decisions.

Using ACT Test Scores with Other Measures to Predict Probabilities of Success

ACT has developed an approach to evaluate the effectiveness of cutoff scores, which is based on the statistical relationship between predictors (e.g., test scores) and the probability of success in the standard course. This approach to evaluating placement systems, based on decision theory (Sawyer, 1989; 1996), uses logistic regression to relate predictors to the probability of success. Optimal cutoff scores are estimated at the point on the score scale where students with that score have a .50 probability of succeeding in the course. This score point is where the percentage of correct classifications will be highest (Sawyer, 1996; 2010). When an institution uses only ACT scores for course placement decisions, there will be a single cutoff score. Ideally, this cutoff score will be developed using the institution's data because optimal cutoff scores vary by institution.

However, a college may find it useful to make placement decisions using a combination of scores obtained from measures other than test scores, such as HSGPA. When multiple measures are used, a high HSGPA can "compensate" for a low ACT score, and vice-versa. Therefore, there

ACT research has found that the joint use of test scores and high school grade point average (HSGPA) provides more information than either test scores or HSGPA alone for predicting college success. Consequently, ACT has advocated for the use of multiple measures when making admission and course placement decisions. This paper aims to help two-year institutions understand the benefits of using multiple measures, such as ACT® scores and HSGPA, for course placement. The tables in this document show that students' probabilities of success in credit-bearing college-level courses at two-year institutions vary depending on students' ACT scores and their HSGPAs. For institutions making the transition from ACT Compass® to the ACT test, these tables may be a useful starting point for developing placement rules.

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will not be a single cutoff score for course placement. The ACT cutoff scores will vary depending on each student's scores on the other measures. Two students with the same ACT subject area test score but different HSGPAs may receive different placement decisions, one being placed in the standard course and the other being placed in the developmental course. In effect, the use of multiple measures necessitates a sliding scale with multiple cutoff scores rather than a single cutoff score. The current study illustrates this concept by examining the joint relationship of ACT test scores and HSGPA for predicting course success at community colleges.

Current Study

Using course grade data from 17 cohort years (1996–2012) representing more than 500,000 student outcomes at more than 200 two-year institutions, conditional probabilities of success were estimated for multiple ACT subject area test scores and HSGPAs for five courses. The course and ACT test scores examined are listed in Table 1. Institutions reported the courses as either standard (credit earned) or developmental/remedial (no credit earned). In standard courses, success was defined as earning a course grade of B or higher. In the developmental courses, success was defined as earning a grade of C or higher because often these courses are graded as “pass-fail”. The conditional probabilities of success for each of the five courses are included in the Appendix in Tables A1–A5.

As noted earlier, a high HSGPA can “compensate” for a low ACT score, and vice-versa. For example, in Table A4 (English Composition 1), a student with an ACT English score of 18 and a HSGPA of 3.0 has a 50% probability of earning a grade of B or better. However, if the student had an ACT score of 21 and a HSGPA of 3.0, the probability would be 55%, and if the student

Table 1. Courses and ACT Subject Area Tests Examined

Course	ACT Subject Area Test	Standard Courses		Developmental Courses	
		Number of Institutions	Number of Students	Number of Institutions	Number of Students
Reading	English			88	17,542
English Composition I	English	259	256,110		
Elementary Algebra	Mathematics			129	48,175
Intermediate Algebra	Mathematics			116	50,680
College Algebra	Mathematics	182	119,228		

Notes: 1) Individual courses within each course type are likely to vary in content. 2) ACT English test scores are typically used for placement into English Composition 1. Students not placed into English Composition 1 are typically placed into Reading, hence the use of ACT English test scores for predicting success in Reading courses.

had an ACT score of 18 and a HSGPA of 3.5, the probability would be 63%. Again, the use of multiple measures necessitates a sliding scale with multiple cutoff scores rather than a single cutoff score.

Based on the information in Tables A4 and A5, Figures 1 and 2 underscore the value of using multiple measures when estimating a student's likelihood of future success. Figure 1 plots the probability of earning a grade of B or higher in English Composition 1 at two-year institutions, given a student's ACT English score and HSGPA. At each ACT English score point, the probability of success varies depending upon the student's HSGPA. If only ACT scores were available, there would be only one probability curve, and students with the same score would have the same estimated probability of success. Similarly, if only HSGPA were used to predict success, students with the same HSGPA would have the same estimated probability of success. Similar patterns can be seen in Figure 2, which displays probability curves for earning a grade of B or higher in College Algebra courses given a student's ACT mathematics score and HSGPA. As demonstrated in these figures, institutions can more accurately predict a student's chance of success in college when they use more than just one measure.

The results in Figures 1 and 2 (and Tables A1–A5) are based on the median results

calculated across multiple institutions. Using the previous example, a student with an ACT English score of 18 and a HSGPA of 3.0 would have a 50% chance of earning a grade of B or better in English Composition 1 at the typical institution. However, probabilities of success vary across institutions. The same student may have a 55% chance of success at institution X, but only a 45% chance of success at institution Y. These differences occur largely because grading standards and course difficulty vary across two-year institutions. Because results vary across institutions, institutions should collect their own course outcome data and adjust their placement cutoff scores accordingly. If assistance is needed in this area, the ACT Course Placement Service (www.act.org/research/services/crsplace/) provides information that institutions can use to place students into courses appropriate for their students' knowledge and skills. That said, we hope that ACT users find these tables informative and that they gain a better understanding of why a single ACT cutoff score is less effective when additional information, such as HSGPA, is available. ■

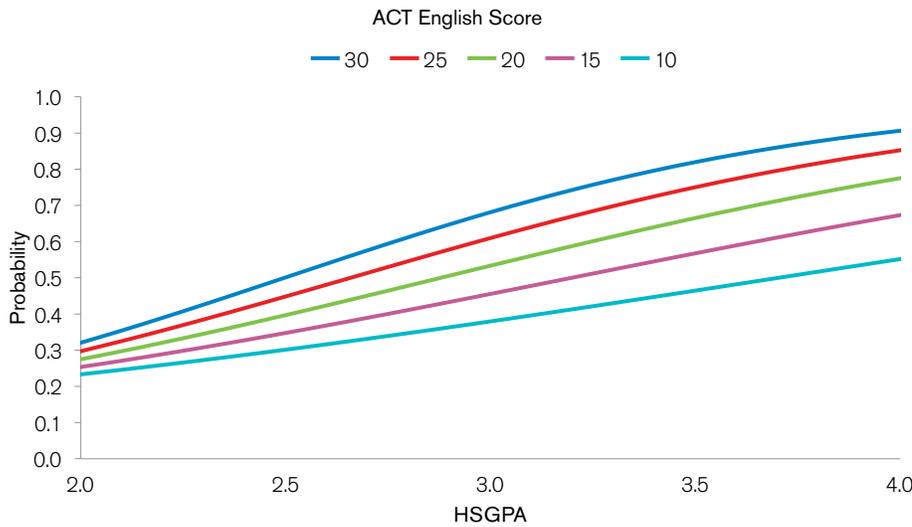


Figure 1. Probability of earning a grade of B or higher in English Composition 1 at two-year institutions, given ACT English score and HSGPA

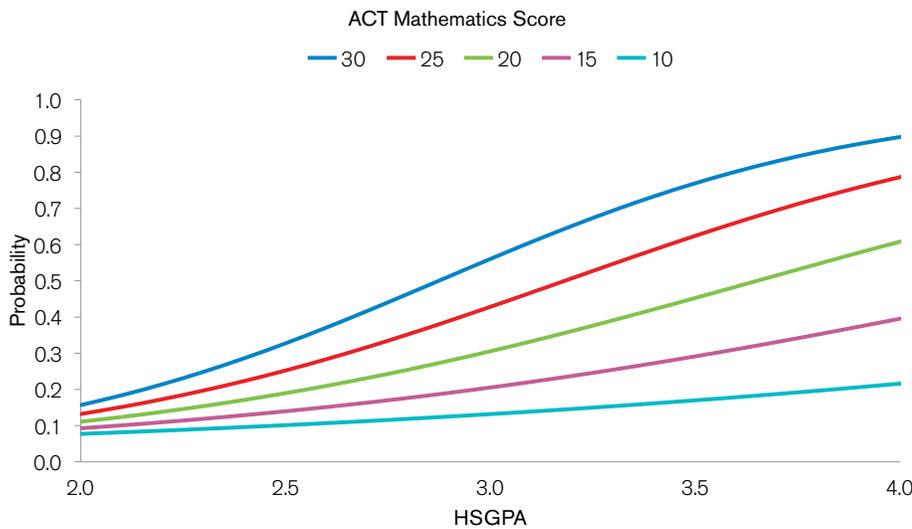


Figure 2. Probability of earning a grade of B or higher in College Algebra at two-year institutions, given ACT mathematics score and HSGPA

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Appendix

The conditional probabilities of success for each of the five courses are included in Tables A1–A5. The tables are color-coded to make interpretation easier. Dark green indicates that a student would have a 75% or higher chance of success; light green indicates a 50% chance to 74% chance of success; yellow indicates a 25% chance to a 49% chance of success; and red indicates a lower than 25% chance of success.

Table A1. Probability of Earning a Grade of C or Higher in Developmental Reading at Two-Year Institutions, by ACT English Score and HSGPA

HSGPA	ACT English																																			Institutions N = 88	Students N = 17,542	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35			36
4.0	.66	.67	.68	.68	.69	.70	.71	.71	.72	.73	.73	.74	.75	.75	.76	.77	.77	.78	.79	.79	.80	.80	.81	.81	.82	.82	.83	.83	.84	.84	.85	.85	.86	.86	.87	.87		
3.9	.65	.65	.66	.67	.68	.69	.69	.70	.71	.72	.73	.74	.74	.75	.76	.77	.77	.78	.79	.79	.80	.80	.81	.81	.82	.82	.83	.83	.84	.84	.85	.85	.86	.86	.87	.87		
3.8	.63	.64	.65	.66	.67	.67	.68	.69	.70	.71	.72	.72	.73	.74	.74	.75	.76	.76	.77	.78	.78	.79	.79	.80	.80	.81	.81	.82	.83	.83	.84	.84	.85	.85	.86	.86		
3.7	.62	.63	.64	.64	.65	.66	.67	.68	.68	.69	.70	.71	.72	.73	.73	.74	.75	.75	.76	.77	.78	.78	.79	.79	.80	.80	.81	.82	.82	.83	.83	.84	.84	.85	.85			
3.6	.61	.62	.62	.63	.64	.65	.65	.66	.67	.68	.68	.69	.70	.71	.71	.72	.73	.73	.74	.75	.75	.76	.77	.77	.78	.78	.79	.79	.80	.81	.81	.82	.82	.83	.83			
3.5	.59	.60	.61	.62	.63	.63	.64	.65	.66	.66	.67	.68	.69	.70	.71	.71	.72	.73	.73	.74	.75	.75	.76	.77	.77	.78	.78	.79	.79	.80	.81	.81	.82	.82				
3.4	.58	.59	.60	.60	.61	.62	.63	.64	.65	.66	.67	.67	.68	.69	.70	.71	.72	.72	.73	.74	.74	.75	.75	.76	.77	.77	.78	.78	.79	.79	.80	.81	.81	.82				
3.3	.57	.57	.58	.59	.60	.61	.62	.63	.64	.65	.66	.67	.67	.68	.69	.70	.71	.72	.72	.73	.74	.74	.75	.75	.76	.77	.77	.78	.78	.79	.79	.80	.81					
3.2	.55	.56	.57	.58	.58	.59	.60	.61	.62	.63	.64	.65	.65	.66	.67	.68	.68	.69	.70	.71	.72	.72	.73	.74	.74	.75	.75	.76	.77	.77	.78	.78	.79	.79				
3.1	.54	.55	.55	.56	.57	.58	.59	.59	.60	.61	.62	.62	.63	.64	.65	.65	.66	.67	.68	.68	.69	.70	.70	.71	.72	.72	.73	.74	.74	.75	.75	.76	.77	.77				
3.0	.52	.53	.54	.55	.56	.56	.57	.58	.59	.60	.61	.62	.63	.63	.64	.65	.66	.66	.67	.68	.68	.69	.70	.70	.71	.72	.72	.73	.74	.74	.75	.75	.76	.77				
2.9	.51	.52	.53	.53	.54	.55	.56	.57	.58	.59	.60	.61	.62	.63	.63	.64	.65	.66	.66	.67	.68	.68	.69	.70	.70	.71	.72	.72	.73	.74	.74	.75	.75					
2.8	.50	.50	.51	.52	.53	.54	.54	.55	.56	.57	.58	.59	.60	.61	.62	.63	.63	.64	.65	.66	.66	.67	.68	.68	.69	.70	.71	.72	.72	.73	.74	.74						
2.7	.48	.49	.50	.51	.51	.52	.53	.54	.55	.56	.57	.58	.59	.60	.61	.62	.63	.63	.64	.65	.66	.66	.67	.68	.68	.69	.70	.71	.72	.72	.73	.73						
2.6	.47	.48	.48	.49	.50	.51	.51	.52	.53	.54	.55	.56	.57	.58	.59	.60	.61	.62	.63	.63	.64	.65	.65	.66	.67	.68	.68	.69	.70	.71	.71							
2.5	.45	.46	.47	.48	.48	.49	.50	.51	.51	.52	.53	.54	.55	.56	.57	.58	.59	.60	.61	.62	.63	.63	.64	.65	.66	.67	.68	.69	.70	.71								
2.4	.44	.45	.45	.46	.47	.48	.48	.49	.50	.51	.51	.52	.53	.54	.55	.56	.57	.58	.59	.60	.61	.62	.63	.64	.65	.66	.67	.68	.69									
2.3	.43	.43	.44	.44	.45	.46	.46	.47	.48	.49	.50	.51	.51	.52	.53	.54	.55	.56	.57	.58	.59	.60	.61	.62	.63	.64	.65	.66	.67									
2.2	.41	.42	.43	.43	.44	.45	.45	.46	.47	.48	.49	.50	.51	.51	.52	.53	.54	.55	.56	.57	.58	.59	.60	.61	.62	.63	.64	.65										
2.1	.40	.41	.41	.42	.43	.43	.44	.45	.46	.47	.48	.49	.50	.51	.51	.52	.53	.54	.55	.56	.57	.58	.59	.60	.61	.62	.63	.64										
2.0	.39	.39	.40	.41	.41	.42	.43	.43	.44	.45	.46	.47	.48	.49	.50	.51	.51	.52	.53	.54	.55	.56	.57	.58	.59	.60	.61	.62										
1.9	.37	.38	.39	.39	.40	.41	.41	.42	.43	.43	.44	.45	.46	.47	.48	.49	.50	.50	.51	.52	.53	.54	.55	.56	.57	.58	.59	.60										
1.8	.36	.37	.37	.38	.39	.39	.40	.41	.41	.42	.43	.44	.45	.46	.47	.48	.49	.50	.50	.51	.52	.53	.54	.55	.56	.57	.58	.59										
1.7	.35	.35	.36	.37	.37	.38	.38	.39	.40	.40	.41	.42	.43	.44	.45	.46	.47	.48	.49	.50	.51	.52	.53	.54	.55	.56	.57	.58										
1.6	.33	.34	.35	.35	.36	.36	.37	.38	.38	.39	.40	.41	.42	.43	.44	.45	.46	.47	.48	.49	.50	.51	.52	.53	.54	.55	.56	.57										
1.5	.32	.33	.33	.34	.35	.35	.36	.37	.38	.38	.39	.40	.41	.42	.43	.44	.45	.46	.47	.48	.49	.50	.51	.52	.53	.54	.55											

Note: 97.1% of developmental Reading students with a reported HSGPA had a HSGPA between 1.5 and 4.0 and an ACT English score between 7 and 25.



Table A2. Probability of Earning a Grade of C or Higher in Developmental Elementary Algebra at Two-Year Institutions, by ACT Mathematics Score and HSGPA

HSGPA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
4.0	.53	.54	.56	.57	.58	.60	.61	.62	.64	.65	.66	.67	.69	.70	.71	.72	.73	.74	.75	.76	.77	.78	.79	.80	.81	.82	.83	.83	.84	.85	.86	.86	.87	.87	.88	.89
3.9	.49	.51	.52	.54	.55	.57	.58	.60	.61	.62	.64	.65	.67	.68	.69	.71	.72	.73	.74	.75	.76	.78	.79	.80	.81	.81	.82	.83	.84	.85	.86	.86	.87	.88	.88	.89
3.8	.45	.47	.49	.50	.52	.53	.55	.57	.58	.60	.62	.63	.65	.66	.68	.69	.70	.72	.73	.74	.76	.77	.78	.79	.80	.81	.82	.83	.84	.85	.86	.87	.87	.88	.89	.89
3.7	.41	.43	.45	.47	.49	.50	.52	.54	.56	.57	.59	.61	.63	.64	.66	.67	.69	.70	.72	.73	.75	.76	.77	.79	.80	.81	.82	.83	.84	.85	.86	.87	.87	.88	.89	.90
3.6	.38	.40	.41	.43	.45	.47	.49	.51	.53	.55	.57	.59	.60	.62	.64	.66	.67	.69	.71	.72	.74	.75	.77	.78	.79	.81	.82	.83	.84	.85	.86	.87	.88	.88	.89	.90
3.5	.34	.36	.38	.40	.42	.44	.46	.48	.50	.52	.54	.56	.58	.60	.62	.64	.66	.68	.70	.71	.73	.75	.76	.78	.79	.80	.82	.83	.84	.85	.86	.87	.88	.89	.90	.90
3.4	.31	.33	.35	.37	.39	.41	.43	.45	.47	.49	.52	.54	.56	.58	.60	.62	.64	.66	.68	.70	.72	.74	.75	.77	.78	.80	.81	.83	.84	.85	.86	.87	.88	.89	.90	.91
3.3	.28	.30	.31	.34	.36	.38	.40	.42	.45	.47	.49	.52	.54	.56	.58	.61	.63	.65	.67	.69	.71	.73	.75	.76	.78	.80	.81	.82	.84	.85	.86	.87	.88	.89	.90	.91
3.2	.25	.27	.28	.31	.33	.35	.37	.39	.42	.44	.47	.49	.52	.54	.56	.59	.61	.64	.66	.68	.70	.72	.74	.76	.78	.79	.81	.82	.84	.85	.86	.87	.88	.89	.90	.91
3.1	.22	.24	.26	.28	.30	.32	.34	.37	.39	.42	.44	.47	.49	.52	.55	.57	.60	.62	.64	.67	.69	.71	.73	.75	.77	.79	.81	.82	.84	.85	.86	.88	.89	.90	.91	.91
3.0	.19	.21	.23	.25	.27	.29	.32	.34	.37	.39	.42	.44	.47	.50	.53	.55	.58	.61	.63	.66	.68	.70	.73	.75	.77	.79	.80	.82	.84	.85	.86	.88	.89	.90	.91	.92
2.9	.17	.19	.21	.22	.25	.27	.29	.31	.34	.37	.39	.42	.45	.48	.51	.53	.56	.59	.62	.64	.67	.70	.72	.74	.76	.78	.80	.82	.84	.85	.86	.88	.89	.90	.91	.92
2.8	.15	.17	.18	.20	.22	.24	.27	.29	.32	.34	.37	.40	.43	.46	.49	.52	.55	.58	.60	.63	.66	.69	.71	.74	.76	.78	.80	.82	.84	.85	.87	.88	.89	.90	.91	.92
2.7	.13	.15	.16	.18	.20	.22	.24	.27	.29	.32	.35	.37	.40	.44	.47	.50	.53	.56	.59	.62	.65	.68	.70	.73	.75	.78	.80	.82	.83	.85	.87	.88	.89	.90	.91	.92
2.6	.11	.13	.14	.16	.18	.20	.22	.24	.27	.30	.32	.35	.38	.41	.45	.48	.51	.54	.58	.61	.64	.67	.70	.72	.75	.77	.79	.82	.83	.85	.87	.88	.89	.91	.92	.93
2.5	.10	.11	.13	.14	.16	.18	.20	.22	.25	.27	.30	.33	.36	.39	.43	.46	.49	.53	.56	.60	.63	.66	.69	.72	.74	.77	.79	.81	.83	.85	.87	.88	.90	.91	.92	.93
2.4	.09	.10	.11	.13	.14	.16	.18	.20	.23	.25	.28	.31	.34	.37	.41	.44	.48	.51	.55	.58	.62	.65	.68	.71	.74	.77	.79	.81	.83	.85	.87	.88	.90	.91	.92	.93
2.3	.08	.09	.10	.11	.13	.15	.16	.19	.21	.23	.26	.29	.32	.35	.39	.42	.46	.50	.53	.57	.61	.64	.67	.71	.73	.76	.79	.81	.83	.85	.87	.89	.90	.91	.92	.93
2.2	.07	.08	.09	.10	.11	.13	.15	.17	.19	.22	.24	.27	.30	.34	.37	.41	.44	.48	.52	.56	.59	.63	.67	.70	.73	.76	.79	.81	.83	.85	.87	.89	.90	.91	.93	.94
2.1	.06	.07	.08	.09	.10	.12	.13	.15	.17	.20	.22	.25	.28	.32	.35	.39	.43	.47	.51	.54	.58	.62	.66	.69	.72	.76	.78	.81	.83	.85	.87	.89	.90	.92	.93	.94
2.0	.05	.06	.07	.08	.09	.10	.12	.14	.16	.18	.21	.24	.27	.30	.33	.37	.41	.45	.49	.53	.57	.61	.65	.69	.72	.75	.78	.81	.83	.85	.87	.89	.90	.92	.93	.94
1.9	.04	.05	.06	.07	.08	.09	.11	.12	.14	.17	.19	.22	.25	.28	.32	.35	.39	.43	.48	.52	.56	.60	.64	.68	.71	.75	.78	.81	.83	.85	.87	.89	.91	.92	.93	.94
1.8	.04	.04	.05	.06	.07	.08	.10	.11	.13	.15	.18	.20	.23	.27	.30	.34	.38	.42	.46	.51	.55	.59	.63	.67	.71	.74	.78	.80	.83	.85	.87	.89	.91	.92	.93	.94
1.7	.03	.04	.04	.05	.06	.07	.09	.10	.12	.14	.16	.19	.22	.25	.28	.32	.36	.40	.45	.49	.54	.58	.62	.67	.70	.74	.77	.80	.83	.85	.87	.89	.91	.92	.93	.94
1.6	.03	.03	.04	.05	.05	.07	.08	.09	.11	.13	.15	.17	.20	.23	.27	.31	.35	.39	.43	.48	.53	.57	.62	.66	.70	.74	.77	.80	.83	.85	.88	.89	.91	.92	.94	.95
1.5	.02	.03	.03	.04	.05	.06	.07	.08	.10	.12	.14	.16	.19	.22	.25	.29	.33	.37	.42	.47	.51	.56	.61	.65	.69	.73	.77	.80	.83	.85	.88	.90	.91	.93	.94	.95

ACT Mathematics

Note: 98.8% of developmental Elementary Algebra students with a reported HSGPA had a HSGPA between 1.5 and 4.0 and an ACT mathematics score between 11 and 25.

Probability ≥ .75
 Probability ≥ .25 < .50
 Probability < .25

Institutions N = 129
 Students N = 48,175

Table A3. Probability of Earning a Grade of C or Higher in Developmental Intermediate Algebra at Two-Year Institutions, by ACT Mathematics Score and HSGPA

HSGPA	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36
4.0	.34	.37	.39	.42	.44	.46	.49	.51	.54	.56	.59	.61	.63	.66	.68	.70	.72	.74	.76	.78	.79	.81	.82	.84	.85	.86	.88	.89	.90	.90	.91	.92	.93	.93	.94	.95
3.9	.33	.35	.37	.39	.42	.44	.47	.49	.52	.54	.57	.59	.61	.64	.66	.68	.70	.72	.74	.76	.78	.80	.81	.83	.84	.85	.86	.88	.89	.90	.90	.91	.92	.93	.93	.94
3.8	.31	.33	.35	.37	.40	.42	.45	.47	.50	.52	.54	.57	.59	.62	.64	.66	.68	.70	.73	.74	.76	.78	.80	.81	.83	.84	.85	.87	.88	.89	.90	.91	.91	.92	.93	.93
3.7	.29	.31	.33	.35	.38	.40	.42	.45	.47	.50	.52	.55	.57	.60	.62	.64	.66	.69	.71	.73	.75	.76	.78	.80	.81	.83	.84	.85	.87	.88	.89	.90	.91	.91	.92	.93
3.6	.27	.29	.31	.34	.36	.38	.40	.43	.45	.48	.50	.53	.55	.57	.60	.62	.64	.67	.69	.71	.73	.75	.76	.78	.80	.81	.83	.84	.85	.87	.88	.89	.90	.91	.91	.92
3.5	.26	.28	.30	.32	.34	.36	.38	.41	.43	.45	.48	.50	.53	.55	.58	.60	.62	.65	.67	.69	.71	.73	.75	.77	.78	.80	.81	.83	.84	.85	.87	.88	.89	.90	.91	.91
3.4	.24	.26	.28	.30	.32	.34	.36	.39	.41	.43	.46	.48	.51	.53	.55	.58	.60	.62	.65	.67	.69	.71	.73	.75	.77	.78	.80	.81	.83	.84	.85	.87	.88	.89	.90	.91
3.3	.23	.24	.26	.28	.30	.32	.34	.37	.39	.41	.44	.46	.48	.51	.53	.56	.58	.60	.63	.65	.67	.69	.71	.73	.75	.77	.78	.80	.81	.83	.84	.85	.87	.88	.89	.90
3.2	.21	.23	.25	.26	.28	.30	.32	.35	.37	.39	.41	.44	.46	.49	.51	.53	.56	.58	.60	.63	.65	.67	.69	.71	.73	.75	.77	.78	.80	.82	.83	.84	.85	.87	.88	.89
3.1	.20	.21	.23	.25	.27	.29	.31	.33	.35	.37	.39	.42	.44	.46	.49	.51	.54	.56	.58	.61	.63	.65	.67	.69	.71	.73	.75	.77	.78	.80	.82	.83	.84	.85	.87	.88
3.0	.19	.20	.22	.23	.25	.27	.29	.31	.33	.35	.37	.39	.42	.44	.47	.49	.51	.54	.56	.58	.61	.63	.65	.67	.69	.71	.73	.75	.77	.78	.80	.82	.83	.84	.85	.87
2.9	.17	.19	.20	.22	.23	.25	.27	.29	.31	.33	.35	.37	.40	.42	.44	.47	.49	.51	.54	.56	.58	.61	.63	.65	.67	.69	.71	.73	.75	.77	.78	.80	.82	.83	.84	.86
2.8	.16	.18	.19	.20	.22	.24	.25	.27	.29	.31	.33	.35	.38	.40	.42	.44	.47	.49	.52	.54	.56	.59	.61	.63	.65	.67	.69	.71	.73	.75	.77	.78	.80	.81	.83	.84
2.7	.15	.16	.18	.19	.21	.22	.24	.26	.27	.29	.31	.33	.36	.38	.40	.42	.45	.47	.49	.52	.54	.56	.59	.61	.63	.65	.67	.69	.71	.73	.75	.77	.78	.80	.81	.83
2.6	.14	.15	.16	.18	.19	.21	.22	.24	.26	.28	.29	.31	.34	.36	.38	.40	.42	.45	.47	.49	.52	.54	.56	.59	.61	.63	.65	.67	.69	.71	.73	.75	.77	.78	.80	.81
2.5	.13	.14	.15	.17	.18	.19	.21	.22	.24	.26	.28	.30	.32	.34	.36	.38	.40	.42	.45	.47	.49	.52	.54	.56	.59	.61	.63	.65	.67	.69	.71	.73	.75	.77	.78	.80
2.4	.12	.13	.14	.15	.17	.18	.19	.21	.23	.24	.26	.28	.30	.32	.34	.36	.38	.40	.42	.45	.47	.49	.52	.54	.56	.59	.61	.63	.65	.67	.69	.71	.73	.75	.77	.78
2.3	.11	.12	.13	.14	.16	.17	.18	.20	.21	.23	.24	.26	.28	.30	.32	.34	.36	.38	.40	.43	.45	.47	.49	.52	.54	.56	.59	.61	.63	.65	.67	.69	.71	.73	.75	.77
2.2	.10	.11	.12	.13	.14	.16	.17	.18	.20	.21	.23	.24	.26	.28	.30	.32	.34	.36	.38	.40	.43	.45	.47	.49	.52	.54	.56	.59	.61	.63	.65	.67	.69	.71	.73	.75
2.1	.10	.11	.11	.12	.13	.15	.16	.17	.18	.20	.21	.23	.24	.26	.28	.30	.32	.34	.36	.38	.40	.43	.45	.47	.49	.52	.54	.56	.58	.61	.63	.65	.67	.69	.71	.73
2.0	.09	.10	.11	.12	.12	.14	.15	.16	.17	.18	.20	.21	.23	.25	.26	.28	.30	.32	.34	.36	.38	.40	.43	.45	.47	.49	.52	.54	.56	.58	.61	.63	.65	.67	.69	.71
1.9	.08	.09	.10	.11	.12	.13	.14	.15	.16	.17	.18	.20	.21	.23	.25	.26	.28	.30	.32	.34	.36	.38	.40	.43	.45	.47	.49	.52	.54	.56	.58	.60	.63	.65	.67	.69
1.8	.08	.08	.09	.10	.11	.12	.13	.14	.15	.16	.17	.19	.20	.21	.23	.25	.26	.28	.30	.32	.34	.36	.38	.40	.43	.45	.47	.49	.51	.54	.56	.58	.60	.63	.65	.67
1.7	.07	.08	.08	.09	.10	.11	.12	.13	.14	.15	.16	.17	.19	.20	.21	.23	.25	.26	.28	.30	.32	.34	.36	.38	.40	.43	.45	.47	.49	.51	.54	.56	.58	.60	.62	.64
1.6	.07	.07	.08	.08	.09	.10	.11	.12	.13	.14	.15	.16	.17	.19	.20	.21	.23	.25	.26	.28	.30	.32	.34	.36	.38	.40	.42	.44	.47	.49	.51	.53	.56	.58	.60	.62
1.5	.06	.07	.07	.08	.09	.10	.11	.12	.13	.14	.15	.16	.17	.19	.20	.21	.23	.25	.26	.28	.30	.32	.34	.36	.38	.40	.42	.44	.47	.49	.51	.53	.55	.58	.60	

Note: 99% of developmental Intermediate Algebra students with a reported HSGPA had a HSGPA between 1.5 and 4.0 and an ACT mathematics score between 11 and 25.

Probability ≥ .75
 Probability ≥ .25 < .50
 Probability < .25

ACT Mathematics

Institutions
 Students

N = 116
 N = 50,680

