## High Failure Rate Courses - Fall 2011 Through Spring 2015

Successful course completion is key to earning a certificate or degree. Therefore, improving course success rates overall and achieving equitable success for all student groups are objectives in COM's strategic plan and student equity plan. Last Spring, Deans were provided with basic descriptive data on high failure rate courses. This report provides that data, and more recent data, and responds to some of their questions in order to better understand the problem and foster discussion of potential solutions. ${ }^{1}$

## Methodology

High failure rate courses were defined using criteria established in similar previous studies and COM's institution-set standard for successful course completion, the latter defined as a minimum $70 \%$ pass rate in the ACCJC annual report. In this study, courses with >=70 enrollment and $<70 \%$ pass rate in at least 4 of the 8 Fall/Spring terms from Fall 2011-Spring 2015 were identified as high failure rate. Both pass rates and success rates are presented in this report. The pass rate includes P grades and D- and higher. Success rate (in alignment with the CA Community College Chancellor's Office definition and shown for additional information that may aid understanding) includes P grades and C and higher. Incompletes (IX), Drops (DR), Ungraded (UG), and In Progress (IP) are excluded from both rates. W and FW grades are included.

## Findings

Courses Meeting High Failure Rate Criteria
Fourteen courses met the criteria for high failure rate (Table 1). Those courses are BEHS103, BIOL110, CIS101, CIS110, ENGL092, ENGL092L, ENGL098, ENGL120, MATH101, MATH103, MATH103A, PHIL110, POLS101 and MATH095. In the tables, rates that exceed the high failure rate threshold designation for a particular semester are shown in green.

[^0]
## Table 1. College of Marin High Failure Rate Courses by Term (Fall 2011-Spring 2015)

|  | Fall 2011 |  |  | Spring 2012 |  |  | Fall 2012 |  |  | Spring 2013 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Course | \% Success | \%. Pass | N | \% Success | \%. Pass | N | \% Success | \%. Pass | N | \% Success | \%. Pass | N |
| BEHS103 | 57.5 | 63.7 | 148 | 64.6 | 66.7 | 98 | 57.6 | 64.4 | 119 | 64.6 | 69.5 | 83 |
| BIOL110 | 65.0 | 69.0 | 305 | 56.1 | 61.6 | 310 | 46.9 | 56.9 | 355 | 68.6 | 73.9 | 268 |
| CIS101 | 44.4 | 46.0 | 126 | 54.1 | 55.1 | 98 | 46.8 | 50.0 | 94 | 62.7 | 64.2 | 67 |
| CIS110 | 56.4 | 59.0 | 124 | 62.0 | 68.2 | 135 | 59.6 | 60.6 | 101 | 62.5 | 65.0 | 128 |
| ENGL092 | 61.5 | 70.2 | 104 | 53.1 | 62.2 | 107 | 60.3 | 70.7 | 122 | 56.0 | 66.7 | 86 |
| ENGL092L | 66.7 | 69.7 | 99 | 50.0 | 57.4 | 117 | 58.5 | 63.6 | 122 | 52.2 | 61.1 | 92 |
| ENGL098 | 61.5 | 66.4 | 146 | 63.6 | 71.3 | 147 | 54.7 | 68.9 | 154 | 54.1 | 62.2 | 110 |
| ENGL120 | 67.8 | 74.4 | 323 | 60.1 | 69.0 | 208 | 63.9 | 65.9 | 310 | 57.8 | 60.7 | 217 |
| MATH101 | 44.0 | 55.3 | 141 | 41.4 | 47.8 | 159 | 38.9 | 52.5 | 170 | 42.5 | 58.2 | 155 |
| MATH103 | 44.4 | 49.3 | 149 | 57.3 | 65.1 | 225 | 54.3 | 61.9 | 369 | 45.0 | 53.0 | 265 |
| MATH103A | 48.2 | 57.3 | 113 | 50.8 | 59.0 | 66 | 61.5 | 69.2 | 40 | 34.4 | 37.5 | 33 |
| PHIL110 | 68.3 | 75.8 | 123 | 64.9 | 69.5 | 133 | 68.1 | 68.9 | 128 | 63.0 | 69.3 | 130 |
| POLS101 | 64.1 | 67.2 | 131 | 61.1 | 63.4 | 139 | 56.8 | 61.0 | 127 | 66.7 | 72.8 | 85 |
| MATH095 | 50.0 | 63.2 | 68 | 39.5 | 61.7 | 81 | 44.0 | 48.3 | 91 | 50.7 | 63.3 | 71 |

(continued on next page)

Table 1 (continued). College of Marin High Failure Rate Courses by Term (Fall 2011-Spring 2015)

|  | Fall 2013 |  |  | Spring 2014 |  |  | Fall 2014 |  |  | Spring 2015 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Course | \% Success | \%. Pass | N | \% Success | \% Pass | N | \% Success | \% Pass | N | \% Success | \% Pass | N |
| BEHS103 | 50.0 | 57.3 | 113 | 50.6 | 53.0 | 83 | 62.7 | 65.1 | 84 | 81.3 | 87.5 | 32 |
| BIOL110 | 55.7 | 64.7 | 351 | 55.4 | 64.5 | 251 | 46.2 | 52.0 | 225 | 55.0 | 62.6 | 243 |
| CIS101* | 52.9 | 56.9 | 51 | 70.4 | 70.4 | 71 | - | - | - | - | - | - |
| CIS110 | 57.7 | 58.5 | 128 | 72.5 | 72.5 | 69 | 65.6 | 71.0 | 94 | 67.1 | 71.8 | 89 |
| ENGL092 | 66.1 | 70.9 | 132 | 57.7 | 61.5 | 79 | 63.8 | 69.1 | 98 | 51.9 | 58.2 | 83 |
| ENGL092L | 65.9 | 71.4 | 131 | 50.6 | 54.3 | 82 | 62.8 | 64.9 | 97 | 54.2 | 54.2 | 85 |
| ENGL098 | 64.2 | 75.2 | 142 | 53.5 | 59.7 | 130 | 65.3 | 66.9 | 125 | 61.7 | 67.0 | 96 |
| ENGL120 | 58.9 | 65.8 | 243 | 58.9 | 62.7 | 211 | 56.6 | 62.0 | 211 | 63.3 | 66.3 | 202 |
| MATH101 | 32.0 | 40.7 | 180 | 32.6 | 43.8 | 147 | 30.6 | 39.4 | 189 | 32.2 | 39.6 | 157 |
| MATH103 | 47.2 | 58.5 | 259 | 50.0 | 53.0 | 299 | 41.8 | 49.8 | 306 | 44.4 | 49.3 | 280 |
| MATH103A | 55.6 | 59.3 | 82 | 44.1 | 58.8 | 36 | 64.1 | 66.7 | 41 | 33.3 | 48.7 | 41 |
| PHIL110 | 70.7 | 75.9 | 124 | 60.4 | 68.1 | 94 | 65.8 | 73.9 | 122 | 64.8 | 68.5 | 111 |
| POLS101 | 53.4 | 55.3 | 105 | 61.2 | 67.0 | 106 | 72.6 | 78.6 | 92 | 82.0 | 83.6 | 65 |
| MATH095 | 52.8 | 74.5 | 106 | 65.8 | 75.3 | 73 | 59.1 | 69.4 | 98 | 61.5 | 81.3 | 91 |

Green= exceeded $70 \%$ pass rate
*CIS101 was not offered in AY 2014-15.
Source: COM MIS files, November 2015. One section of MATH095 in Spring 2013 was not included in the MIS submission. The section has similar pass and success rates as other sections for that term and would not change any of the results presented in this study.

Trends
MATH095, CIS110 and POLS101 all show improved course pass rates in recent semesters, surpassing $70 \%$. The CIS110 rate was higher in the last three semesters and POLS101 in the last two (Table 1).

MATH095 met high failure rate criteria from Fall 2011-Spring 2013, though in the most recent 4 semesters it has not. Both pass and success rates increased after Fall 2012. (See Figure 1, next page). Dedicated tutors began in this course in Spring 2013 and have continued in at least one section each term, with the most sections ( $\mathrm{N}=3$ ) in Spring 2015. Pass and success rates have been consistently higher since the second semester in which dedicated tutors were in place (Fall 2013). T-tests comparing MATH095 sections with and without dedicated tutors show that students
in sections with dedicated tutors have slightly higher pass and success rates, but the difference is not statistically significant, meaning that the result could have occurred by chance (Table 2, next page).

Dedicated tutors also were utilized in other Math courses including 101 and 103 in later semesters. However, the overall course pass and success rates did not increase in these courses. T-tests comparing Math 101 sections with and without tutors and Math 103 sections with and without tutors indicate, for both courses, the sections with tutors have higher pass and success rates (Table 2 , next page). Given these and the Math 095 findings, additional investigation is warranted before concluding that adding dedicated tutors to courses is effective. Other factors may be contributing, such as different types of students in the tutored and non-tutored sections or particular faculty teaching tutored or non-tutored courses. In addition, if tutoring is the reason for the higher rates, then it is not currently offered in enough sections to substantially raise the overall course pass rate. For example, if all sections of Math 103 included tutors, and tutoring is helping more students pass, then assuming the same effect holds across semesters, adding tutors to all Math 103 sections likely would improve the overall Math 103 pass rate to $57 \%$.

Figure 1. MATH095 Course Success and Pass Rates by Term (Fall 2011-Spring 2015)


Table 2. MATH Course Success and Pass Rates With and Without Dedicated Tutors (Spring 2013-Spring 2015 combined, where courses with tutoring were offered)

| Course | Tutor status | $\mathbf{N}$ | Mean Pass Rate | Mean Success Rate |
| :--- | :--- | :--- | :--- | :--- |
| MATH095 | No tutors | 111 | 70.3 | 54.9 |
|  | With tutors | 328 | 74.1 | 58.8 |
| MATH101 | No tutors | 476 | $35.4^{*}$ | $26.3^{*}$ |
|  | With tutors | 185 | 51.4 | 43.2 |
| MATH103 | No tutors | 552 | $45.8^{*}$ | $41.3^{* *}$ |
|  | With tutors | 328 | 57.0 | 50.6 |

*T-test significant at $p \leq .001$.
**T-test significant at $p \leq .01$.
Distance Education and Face-to-Face Sections
The Deans requested a comparison of distance and face-to-face sections for the courses meeting high failure rate criteria, as well as SPAN101. We compared the overall pass and success rates for these courses with all terms combined, and then by term-since rates in some of these courses have changed over time.

Looking at course success and pass rates for all terms combined, the distance sections have lower pass and success rates than the face-to-face sections (Table 3, next page). MATH095, however, shows an unusual pattern. While its pass rate in face-to-face sections is nearly $17 \%$ higher than the distance sections (consistent with the overall pattern), its success rate was slightly higher for distance than face-to-face sections.

Three courses, PHIL110, POLS101 and SPAN101, had an average pass rate above $70 \%$ for the face-to-face sections, but below $70 \%$ for the distance sections (Table 3).

Table 3. High Failure Rate Courses and SPAN101: Average Pass and Success Rates by Face-to-Face and Distance Sections (Fall 2011-Spring 2015 Combined)

| Course | Face-to-Face <br> \% Success |  |  |  | \% Pass | Distance |  |  |  |
| :--- | ---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| CIS110 | 983 | 64.0 | 67.5 | 205 | 50.7 | 52.7 | 13.3 | \% Difference <br> in Success | \% Difference <br> in Pass |
| ENGL120 | 2542 | 62.4 | 67.3 | 119 | 42.9 | 50.4 | 19.5 | 14.8 |  |
| MATH095 | 758 | 52.5 | 67.2 | 26 | 54.7 | 50.0 | -2.2 | 16.9 |  |
| MATH101 | 1124 | 40.2 | 50.2 | 301 | 21.6 | 31.9 | 18.6 | 17.2 |  |
| MATH103 | 2270 | 49.7 | 56.9 | 367 | 37.1 | 41.1 | 12.6 | 15.3 |  |
| PHIL110 | 789 | 69.8 | 74.6 | 460 | 61.2 | 66.5 | 8.6 | 8.1 |  |
| POLS101 | 898 | 68.9 | 72.9 | 127 | 42.5 | 43.3 | 26.4 | 29.6 |  |
| SPAN101* | 1517 | 72.6 | 75.7 | 231 | 55.8 | 58.0 | 16.8 | 17.7 |  |

* SPAN101 is not a high failure rate course but the comparison was requested by the Dean.

Table 4 (next page) includes only the semesters in which both modalities were offered for each course. In one semester of 3 different courses, the DE pass and success rates were higher than the face-to-face sections. Because these are so rare, they are likely just anomalies without a determinable explanation.

The CIS 110 DE rates were higher or similar in two of the 5 semesters that DE sections were offered (Table 4), but the overall pass and success rates for the course (Table 1) have been substantially higher (above the $70 \%$ standard) in the three most recent semesters-in which no DE sections were offered.

For POLS101, the higher rates have been only in the two most recent semesters and DE sections have not been offered since Fall 2012. Therefore, there would be no DE effect on the recent change in rates for this course.

Table 4. High Failure Rate Courses and SPAN101: Average Pass and Success Rates by Face-to-Face and Distance Sections by Term (Fall 2011-Spring 2015)

| Course | Term | Face-to-Face |  |  | Distance |  |  | \% Difference in Pass | \% Difference in Success |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | N | \% Pass | \% Success | N | \% Pass | \% Success |  |  |
| CIS110 | Fall 2011 | 91 | 57.1 | 54.9 | 33 | 60.7 | 57.1 | -3.6 | -2.2 |
| CIS110 | Spring 2012 | 94 | 78.7 | 71.3 | 41 | 34.1 | 31.7 | 44.6 | 39.6 |
| CIS110 | Fall 2012 | 68 | 63.2 | 61.8 | 33 | 51.5 | 51.5 | 11.7 | 10.3 |
| CIS110 | Spring 2013 | 90 | 63.3 | 61.1 | 38 | 61.8 | 58.8 | 1.6 | 2.3 |
| CIS110 | Fall 2013 | 88 | 60.2 | 59.1 | 44 | 51.4 | 51.4 | 8.9 | 7.7 |
| ENGL120 | Fall 2013 | 215 | 65.1 | 58.6 | 28 | 50.0 | 41.7 | 15.1 | 16.9 |
| ENGL120 | Spring 2014 | 185 | 66.5 | 62.7 | 26 | 33.3 | 29.2 | 33.2 | 33.5 |
| ENGL120 | Fall 2014 | 140 | 62.1 | 58.6 | 71 | 56.3 | 47.9 | 5.8 | 10.7 |
| MATH095 | Fall 2011 | 42 | 71.4 | 50.0 | 26 | 50.0 | 54.7 | 21.4 | -4.7 |
| MATH101 | Spring 2012 | 113 | 56.6 | 49.6 | 46 | 25.0 | 20.5 | 31.6 | 29.1 |
| MATH101 | Fall 2012 | 129 | 58.1 | 42.6 | 41 | 25.6 | 20.5 | 32.5 | 22.1 |
| MATH101 | Spring 2013 | 117 | 59.8 | 46.2 | 38 | 42.9 | 22.9 | 17.0 | 23.3 |
| MATH101 | Spring 2014 | 104 | 46.2 | 34.6 | 43 | 37.5 | 27.5 | 8.7 | 7.1 |
| MATH101 | Fall 2014 | 152 | 41.4 | 32.9 | 37 | 22.9 | 14.3 | 18.5 | 18.6 |
| MATH101 | Spring 2015 | 118 | 42.4 | 35.6 | 39 | 25.7 | 17.1 | 16.7 | 18.5 |
| MATH103 | Fall 2011 | 113 | 51.3 | 45.1 | 36 | 36.4 | 36.4 | 15.0 | 8.7 |
| MATH103 | Spring 2012 | 183 | 67.8 | 59.1 | 42 | 46.2 | 43.4 | 21.6 | 15.7 |
| MATH103 | Fall 2012 | 320 | 64.1 | 55.9 | 49 | 33.3 | 31.3 | 30.7 | 24.6 |
| MATH103 | Spring 2013 | 220 | 55.0 | 47.3 | 45 | 25.6 | 18.6 | 29.4 | 28.7 |
| MATH103 | Fall 2013 | 222 | 55.4 | 44.1 | 37 | 62.9 | 54.3 | -7.5 | -10.2 |
| MATH103 | Spring 2014 | 259 | 54.4 | 51.4 | 40 | 43.6 | 41.0 | 10.9 | 10.4 |
| MATH103 | Fall 2014 | 258 | 51.2 | 42.6 | 48 | 37.0 | 32.6 | 14.2 | 10.0 |
| MATH103 | Spring 2015 | 235 | 48.1 | 43.0 | 45 | 46.5 | 44.2 | 1.6 | -1.2 |

(continued on next page)

Table 4 (continued). High Failure Rate Courses and SPAN101: Average Pass and Success Rates by Face-to-Face and Distance Sections by Term (Fall 2011-Spring 2015)

| Course | Term | Face-to-Face |  |  | Distance |  |  | \% Difference in Pass | \% Difference in Success |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  |  | N | \% Pass | \% Success | N | \% Pass | \% Success |  |  |
| PHIL110 | Fall 2011 | 66 | 75.8 | 66.7 | 57 | 74.5 | 69.1 | 1.2 | -2.4 |
| PHIL110 | Spring 2012 | 70 | 75.7 | 74.3 | 63 | 62.3 | 54.1 | 13.4 | 20.2 |
| PHIL110 | Fall 2012 | 69 | 69.6 | 68.1 | 59 | 59.6 | 59.6 | 9.9 | 8.5 |
| PHIL110 | Spring 2013 | 73 | 69.9 | 64.4 | 57 | 64.9 | 57.9 | 5.0 | 6.5 |
| PHIL110 | Fall 2013 | 69 | 76.8 | 71.0 | 55 | 68.6 | 64.7 | 8.2 | 6.3 |
| PHIL110 | Spring 2014 | 66 | 66.7 | 59.1 | 28 | 72.0 | 64.0 | -5.3 | -4.9 |
| PHIL110 | Fall 2014 | 67 | 79.1 | 76.1 | 55 | 60.4 | 45.8 | 18.7 | 30.3 |
| PHIL110 | Spring 2015 | 55 | 72.7 | 69.1 | 56 | 61.8 | 58.2 | 10.9 | 10.9 |
| POLS101 | Fall 2011 | 97 | 71.1 | 67.1 | 34 | 53.1 | 53.1 | 18.0 | 14.0 |
| POLS101 | Spring 2012 | 103 | 68.9 | 67.0 | 36 | 36.4 | 33.3 | 32.5 | 33.7 |
| POLS101 | Fall 2012 | 79 | 68.4 | 62.0 | 48 | 41.2 | 41.9 | 27.2 | 20.1 |
| SPAN101 | Spring 2012 | 125 | 63.2 | 56.8 | 59 | 42.4 | 39.0 | 20.8 | 17.8 |
| SPAN101 | Fall 2012 | 126 | 72.2 | 68.3 | 50 | 62.0 | 62.0 | 10.2 | 6.3 |
| SPAN101 | Spring 2013 | 105 | 68.6 | 67.6 | 37 | 64.9 | 64.9 | 3.7 | 2.7 |
| SPAN101 | Fall 2013 | 128 | 77.3 | 76.6 | 43 | 69.8 | 67.4 | 7.6 | 9.2 |
| SPAN101 | Spring 2014 | 89 | 70.8 | 65.2 | 42 | 57.1 | 52.4 | 13.6 | 12.8 |

Note: Fall/Spring terms shown in which both modalities were offered.
Day/Evening Courses
The Deans also requested a comparison of course pass rates by time of day the courses were offered. With all high failure rate courses combined, there is no difference in pass or success rates by time of day (Table 5).

Table 5. Average Pass and Success Rates by Time of Day, All High Failure Rate Courses Combined (Fall 2011-Spring 2015)

|  | $\mathbf{N}$ | \% Success | \% Pass |
| :--- | :---: | :---: | :---: |
| Morning | 7,875 | 56.9 | 63.8 |
| Afternoon | 3,066 | 55.0 | 61.9 |
| Evening | 3,708 | 56.5 | 62.9 |

When pass rates for each course are run separately by time of day, some differences emerge, but the patterns are inconsistent (Table 6). This suggests that influences other than time of day may be affecting pass and success rates in these courses.

Table 6. High Failure Rate Courses: Average Pass and Success Rates by Time of Day (Fall 2011-Spring 2015 Combined)

|  | BEHS103 |  |  | BIOL110 |  |  | CIS101 |  |  | CIS110 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | N | \% Success* | \% Pass* | N | \% Success* | \% Pass | N | \% Success* | \% Pass* | N | \% Success* | \% Pass* |
| Morning | 459 | 66.4 | 73.4 | 1155 | 55.4 | 62.4 | 297 | 60.0 | 61.6 | 516 | 60.7 | 63.4 |
| Afternoon | 217 | 38.2 | 42.4 | 758 | 58.8 | 65.8 | 191 | 54.5 | 55.5 | - | - | - |
| Evening | 212 | 63.7 | 66.5 | 691 | 52.1 | 60.1 | 104 | 40.4 | 41.3 | 257 | 70.0 | 74.3 |
|  | ENGL092 |  |  | ENGL098 |  |  | ENGL120 |  |  | MATH095 |  |  |
|  | N | \% Success | \% Pass | N | \% Success* | \% Pass* | N | \% Success | \% Pass | N | \% Success* | \% Pass* |
| Morning | 475 | 57.5 | 64.2 | 760 | 61.4 | 69.6 | 1419 | 60.7 | 66.7 | 243 | 44.0 | 60.5 |
| Afternoon | 292 | 58.2 | 65.1 | 108 | 62.0 | 68.5 | 280 | 58.2 | 61.4 | 137 | 59.9 | 73.7 |
| Evening | 126 | 61.1 | 67.5 | 328 | 52.1 | 60.9 | 419 | 60.6 | 63.0 | 345 | 57.8 | 71.3 |
|  | MATH101 |  |  | MATH103 |  |  | MATH103A |  |  | POLS101 |  |  |
|  | N | \% Success* | \% Pass* | N | \% Success* | \% Pass* | N | \% Success* | \% Pass* | N | \% Success* | \% Pass* |
| Morning | 582 | 42.4 | 53.6 | 622 | 42.1 | 50.0 | 222 | 36.5 | 45.5 | 457 | 62.1 | 67.2 |
| Afternoon | - | - | - | 873 | 52.2 | 59.7 | 302 | 54.3 | 62.6 | 99 | 56.6 | 61.6 |
| Evening | 402 | 35.8 | 44.8 | 483 | 55.7 | 62.0 | - | - | - | 254 | 79.6 | 81.5 |

Note: Courses not included are PHIL110 (only offered in the morning) and ENGLO92L (lab course without a specific time).

## Enrollment Status

First-time college students passed and succeeded at rates equivalent to or higher than all others in high failure English courses, MATH103, and MATH103A, but at lower rates in MATH095 and MATH101 (Table 7). In fact, with the exception of special admits, who for all but one course are so few that the group rate can vary substantially with a change in only one student, first-time students in ENGLO92 were the only group that met the $70 \%$ pass rate standard.

Another finding of interest involves Math103. Far more K -12 students take this course than any of the others in this study, and their pass and success rates are higher than the other enrollment status groups.

Table 7. High Failure Rate English and Math Courses: Average Pass and Success Rates by Enrollment Status (Fall 2011-Spring 2015 Combined)

|  | ENGL092 |  |  | ENGL092L |  |  | ENGL098 |  |  | ENGL120 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | N | \% Success | \% Pass | N | \% Success | \% Pass | N | \% Success | \% Pass | N | \% Success | \% Pass |
| First-Time Student | 378 | 61.1 | 70.1 | 378 | 61.6 | 66.9 | 351 | 61.3 | 68.9 | 590 | 63.6 | 67.5 |
| First-Time Transfer | 118 | 61.0 | 63.6 | 117 | 57.3 | 59.0 | 147 | 61.2 | 63.3 | 287 | 59.2 | 64.1 |
| Returning Student | 36 | 58.3 | 61.1 | 40 | 52.5 | 55.0 | 68 | 64.7 | 66.2 | 95 | 62.1 | 64.2 |
| Continuing Student | 462 | 56.9 | 64.1 | 461 | 57.5 | 61.4 | 848 | 57.3 | 66.6 | 1663 | 60.9 | 66.6 |
| Special Admit (K-12) | 1 | 100.0 | 100.0 | 1 | 100.0 | 100.0 | 7 | 57.1 | 71.4 | 20 | 65.0 | 70.0 |


|  | MATH095 |  |  | MATH101 |  |  | MATH103 |  |  | MATH103A |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | N | \% Success | \% Pass | N | \% Success | \% Pass | N | \% Success | \% Pass | N | \% Success | \% Pass |
| First-Time Student | 65 | 37.9 | 46.8 | 188 | 28.2 | 39.4 | 449 | 47.2 | 54.1 | 134 | 49.3 | 59.0 |
| First-Time Transfer | 53 | 52.8 | 58.5 | 132 | 37.1 | 44.7 | 242 | 46.7 | 54.5 | 60 | 43.3 | 48.3 |
| Returning Student | 34 | 55.9 | 61.8 | 57 | 35.6 | 42.1 | 73 | 53.4 | 56.2 | 12 | 33.3 | 33.3 |
| Continuing Student | 656 | 52.3 | 67.7 | 1037 | 37.6 | 47.5 | 1818 | 47.7 | 54.4 | 438 | 48.4 | 56.6 |
| Special Admit (K-12) | 1 | 0.0 | 100.0 | 10 | 70.0 | 100.0 | 54 | 61.1 | 68.5 | 2 | 100.0 | 100.0 |

## High Failure Rate Math Courses Compared to All Other Courses

Another question the Deans asked was, "Do students fail math but succeed in their other courses?" Paired t-tests show that students failed high failure math courses at higher rates than their other courses in all terms except Spring 2014 (Table 8). Success rates were lower in high failure math than other courses in every term. However, this does not mean they were high achievers in their other courses. The pass rates for their other courses exceeded $70 \%$ in only 5 of the 8 semesters in this study. In 7 of the 8 semesters, success rates for all other courses were also below $70 \%$. These patterns suggest that students who perform poorly in high failure math courses also tend to perform less well in their other courses, though not as poorly as they do in the high failure math courses.

Table 8. Average Pass and Success Rates in High Failure Rate Math Courses Compared to All Other Courses (Fall 2011-Spring 2015 Combined)

| Term | $\mathbf{N}^{*}$ | \% Success- <br> HF Math | \% Success-all <br> other courses | \% <br> Difference | \% Pass- <br> HF Math | \% Pass-all <br> other courses | \% <br> Difference |
| :--- | ---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Fall 2011 | 92 | 40.2 | 62.4 | 22.2 | 47.8 | 72.2 | 24.4 |
| Spring 2012 | 56 | 30.4 | 52.2 | 21.8 | 39.3 | 57.9 | 18.6 |
| Fall 2012 | 196 | 49.0 | 68.3 | 19.3 | 60.2 | 73.3 | 13.1 |
| Spring 2013 | 57 | 38.6 | 57.0 | 18.4 | 45.6 | 63.3 | 17.7 |
| Fall 2013 | 190 | 41.6 | 68.1 | 26.5 | 50.5 | 74.2 | 23.7 |
| Spring 2014 | 56 | 53.6 | 66.9 | 13.3 | 66.1 | 68.7 | 2.6 |
| Fall 2014 | 186 | 37.6 | 72.0 | 34.4 | 45.2 | 75.5 | 30.3 |
| Spring 2015 | 82 | 39.0 | 67.5 | 28.5 | 43.9 | 70.0 | 26.1 |

Paired $t$-tests are statistically significant at p<. 05 for every term except pass rates for Spring 2014.
*Population is all students taking at least one high failure math course and one other non-high-failure rate math course in the given semester.
Success and Pass Rates in High Failure English and Math by First Course Taken
For some courses, it appears students who take a lower level course before a higher level course pass the higher level course at rates 2-6 percentage points higher than students who first enroll in the higher level course (Table 9). In one case, the difference is 15 percentage points. These courses include ENGL120, MATH095 and MATH103A except for those who started in MATH095. They pass MATH103A at far lower rates than students who start at all other levels. Also, in MATH103, students who started in MATH95 or MATH101 passed at higher rates than those who started directly in MATH103. However, since these are only descriptive data, other influences could be producing these patterns so further investigation is needed before conclusions can be drawn about the course level in which students should begin.

Table 9. High Failure Rate English and Math Courses: Average Pass and Success Rates by First Course Taken (Fall 2011-Spring 2015 Combined)

|  | ENGL120 |  |  |  |
| :--- | ---: | :---: | ---: | :---: |
| First English Course Taken | N | \% Success | \% Pass |  |
| Below ENG092 | 111 | 62.2 | 66.7 |  |
| ENGL092 | 255 | 65.1 | 71.2 |  |
| ENGL098 | 579 | 64.1 | 69.8 |  |
| ENGL116 | 19 | 78.9 | 78.9 |  |
| ENGL120 | 1,697 | 59.9 | 64.6 |  |
|  | ENGL098 |  |  |  |
| First English Course Taken | N | \% Success | \% Pass |  |
| Below ENG092 | 120 | 58.3 | 66.7 |  |
| ENGL092 | 376 | 56.9 | 66.2 |  |
| ENGL098 | 931 | 59.9 | 67 |  |
|  |  | ENGL092 |  |  |
| First English Course Taken | N | \% Success | \% Pass |  |
| Below ENG092 | 156 | 55.8 | 63.5 |  |
| ENGL092 | 844 | 59.7 | 66.8 |  |


|  | MATH103 |  |  |  |  |
| :--- | ---: | :---: | ---: | :---: | :---: |
| First Math Course Taken | N | \% Success | \% Pass |  |  |
| Below MATH095 | 64 | 42.2 | 46.9 |  |  |
| MATH095 | 135 | 49.6 | 56.3 |  |  |
| MATH101 | 401 | 53.9 | 58.4 |  |  |
| MATH103 | 2037 | MATH103A |  |  |  |
|  | N | \% Success | \% Pass |  |  |
| First Math Course Taken | 29 | 51.7 | 58.6 |  |  |
| Below MATH095 | 43 | 37.2 | 39.5 |  |  |
| MATH095 | 123 | 53.7 | 61.0 |  |  |
| MATH101 | 451 | 47.2 |  |  | 56.1 |
| MATH103A | N | \% Success | \% Pass |  |  |
|  | 157 | 36.9 | 46.5 |  |  |
| First Math Course Taken | 282 | 36.2 | 45.0 |  |  |
| Below MATH095 | 986 | 36.2 | 46.7 |  |  |
| MATH095 | MATH095 |  |  |  |  |
| MATH101 | N | \% Success | \% Pass |  |  |
|  | 336 | 51.4 |  |  |  |
| First Math Course Taken | 448 | 53.1 | 64.0 |  |  |
| Below MATH095 |  |  |  |  |  |
| MATH095 |  |  |  |  |  |

## Race/Ethnicity

These data show wide variation in course pass and success rates between racial/ethnic groups (Table 10). In general, Asian and White students pass and succeed in high failure rate courses at higher rates than other groups. However, even those groups did not pass at higher than $70 \%$ in most courses. Asian students did so in 7 of the 14 courses; White students in 4 courses; and though their numbers are small (resulting in
considerable variation in rates), American Indian/Alaska native students achieved the pass rate standard in 4 courses while Native Hawaiian/Pacific Islander students did so in 3 courses.

Considering only the groups with at least 20 students, the difference in pass rates between some groups is huge, as much as 56 percentage points in CIS110, 42 percentage points in BEHS103, 38 percentage points in Math95 and 30 percentage points in BIOL110. All of the high failure rate courses showed a greater than 10 percentage point difference between its highest and lowest achieving racial/ethnic groups.

BEHS103 is the only course in which most groups pass at greater than 70\%. Its African American and Hispanic student rates are far lower.

Table 10. High Failure Rate Courses: Average Pass and Success Rates by Race/Ethnicity (Fall 2011-Spring 2015 Combined)

|  | BEHS103 |  |  | BIOL110 |  |  | CIS101 |  |  | CIS110 |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | N | \% Success | \% Pass | N | \% Success | \% Pass | N | \% Success | \% Pass | N | \% Success | \% Pass |
| Asian | 68 | 75.0 | 82.4 | 357 | 54.3 | 62.2 | 79 | 69.6 | 70.9 | 160 | 76.3 | 79.4 |
| Black/African American | 172 | 32.0 | 40.1 | 210 | 30.5 | 43.8 | 194 | 38.1 | 40.2 | 151 | 36.4 | 39.1 |
| Hispanic/Latino | 315 | 56.8 | 64.8 | 876 | 41.8 | 52.1 | 205 | 64.9 | 66.3 | 288 | 61.5 | 67.7 |
| American Indian/Alaska Native | 7 | 85.7 | 85.7 | 24 | 50.0 | 54.2 | 6 | 50.0 | 50.0 | 9 | 77.8 | 77.8 |
| Native Hawaiian/Pacific Islander | 8 | 75.0 | 75.0 | 29 | 55.2 | 58.6 | 9 | 77.8 | 77.8 | 9 | 55.6 | 55.6 |
| Two or more races | 41 | 70.7 | 75.6 | 121 | 48.8 | 55.4 | 21 | 57.1 | 57.1 | 21 | 19.0 | 23.8 |
| White | 685 | 68.5 | 73.0 | 1,845 | 67.5 | 74.0 | 398 | 65.6 | 66.8 | 617 | 63.4 | 66.0 |
|  |  | ENGL092 |  |  | ENGL092L |  |  | ENGL098 |  |  | ENGL120 |  |
|  | N | \% Success | \% Pass | N | \% Success | \% Pass | N | \% Success | \% Pass | N | \% Success | \% Pass |
| Asian | 112 | 71.4 | 79.5 | 111 | 73.9 | 77.5 | 134 | 62.7 | 67.9 | 255 | 66.3 | 68.6 |
| Black/African American | 208 | 50.5 | 56.3 | 206 | 51.9 | 55.8 | 213 | 46.9 | 54.9 | 232 | 50.4 | 56.9 |
| Hispanic/Latino | 435 | 63.2 | 69.7 | 429 | 63.2 | 66.4 | 665 | 56.7 | 63.2 | 898 | 60.4 | 66.1 |
| American Indian/Alaska Native | 9 | 55.6 | 66.7 | 8 | 62.5 | 75.0 | 10 | 60.0 | 60.0 | 18 | 72.2 | 77.8 |
| Native Hawaiian/Pacific Islander | 7 | 42.9 | 42.9 | 5 | 60.0 | 80.0 | 12 | 58.3 | 58.3 | 31 | 45.2 | 48.4 |
| Two or more races | 41 | 56.1 | 63.4 | 43 | 51.2 | 58.1 | 38 | 42.1 | 50.0 | 109 | 61.5 | 64.2 |
| White | 221 | 59.3 | 66.5 | 217 | 60.4 | 62.7 | 503 | 60.4 | 66.4 | 1,299 | 62.0 | 65.8 |

Table 10 (continued). High Failure Rate Courses: Average Pass and Success Rates by Race/Ethnicity (Fall 2011-Spring 2015 Combined)

|  | MATH095 |  |  | MATH101 |  |  | MATH103 |  |  | MATH103A |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | N | \% Success | \% Pass | N | \% Success | \% Pass | N | \% Success | \% Pass | N | \% Success | \% Pass |
| Asian | 70 | 60.0 | 75.7 | 89 | 49.4 | 55.1 | 264 | 51.5 | 59.5 | 59 | 50.8 | 57.6 |
| Black/African American | 131 | 27.5 | 40.5 | 115 | 29.6 | 37.4 | 107 | 40.2 | 44.9 | 45 | 35.6 | 40.0 |
| Hispanic/Latino | 355 | 43.1 | 57.5 | 474 | 33.3 | 47.3 | 737 | 41.0 | 50.6 | 212 | 41.0 | 50.9 |
| American Indian/Alaska Native | 6 | 66.7 | 66.7 | 10 | 50.0 | 60.0 | 20 | 45.0 | 55.0 | 11 | 9.1 | 18.2 |
| Native Hawaiian/Pacific Islander | 11 | 45.5 | 63.6 | 14 | 50.0 | 57.1 | 21 | 38.1 | 42.9 | 8 | 50.0 | 50.0 |
| Two or more races | 34 | 38.2 | 50.0 | 38 | 26.3 | 39.5 | 107 | 45.8 | 55.1 | 25 | 48.0 | 56.0 |
| White | 387 | 57.6 | 68.2 | 757 | 42.3 | 52.2 | 1,270 | 56.5 | 61.4 | 331 | 54.4 | 61.9 |
|  | PHIL110 |  |  | POLS101 |  |  |  |  |  |  |  |  |
|  | N | \% Success | \% Pass | N | \% Success | \% Pass |  |  |  |  |  |  |
| Asian | 152 | 68.4 | 71.1 | 106 | 65.1 | 67.0 |  |  |  |  |  |  |
| Black/African American | 55 | 45.5 | 50.9 | 69 | 59.4 | 59.4 |  |  |  |  |  |  |
| Hispanic/Latino | 232 | 55.6 | 62.9 | 264 | 59.1 | 62.5 |  |  |  |  |  |  |
| American Indian/Alaska Native | 9 | 55.6 | 66.7 | 8 | 50.0 | 50.0 |  |  |  |  |  |  |
| Native Hawaiian/Pacific Islander | 11 | 54.5 | 54.5 | 11 | 36.4 | 45.5 |  |  |  |  |  |  |
| Two or more races | 48 | 58.3 | 62.5 | 33 | 60.6 | 66.7 |  |  |  |  |  |  |
| White | 784 | 70.5 | 76.0 | 634 | 70.2 | 72.7 |  |  |  |  |  |  |
| Note: Students with race/eth | listed | "Unknown" | t includ |  |  |  |  |  |  |  |  |  |


[^0]:    ${ }^{1}$ Resources:
    John N. Gardner Institute for Excellence in Undergraduate Education, Improving Gateway Course Success
    http://www.jngi.org/institute-news/4887/
    National Survey of Student Success Initiatives at Two-Year Colleges
    http://www.jngi.org/wordpress/wp-content/uploads/2014/07/National-2-yr-Survey-Booklet_webversion.pdf
    Community College Research Center at Columbia University. Not Just Math and English: Courses that Pose Problems to Community College Completion
    http://ccrc.tc.columbia.edu/publications/obstacle-courses-community-college-completion.html

