

# **A Study of the Correlation between STAAR Performance and Course Performance on Biology**

## **Overview**

Texas Education Code Section 39.332(b)(6) mandates an evaluation of the correlation between student classroom assessment grades and student performance on state-mandated assessments. To comply with this statute, the Student Assessment Division at the Texas Education Agency (TEA) has conducted periodic studies to determine the association between students' classroom performance and their scores on statewide criterion-referenced assessments.

The current report presented the most recent study, which examined the relationship between passing (i.e., meeting the *Approaches* standard on) the spring 2017 State of Texas Assessment of Academic Readiness (STAAR) Biology assessment and passing (i.e., receiving credit for) the Biology course. The passing rates for the spring 2017 STAAR Biology assessment were compared with the passing rates for the Biology course based on the course completion information submitted to TEA by districts for the 2016–2017 school year. All students in the state who had both STAAR Biology data and Biology course data available were considered for comparison. As done in previous studies, if students who enrolled in the same course multiple times through 2016–2017 school year had different credit results (i.e., pass or fail), the observation including a passing result was used for comparison. Otherwise, the result from the most recent course enrollment was used for comparison.

## **Results**

### **Overall Student Performance**

Table 1 presents the overall passing rates for students who were available for the comparison study. The table has three sections. The first section (column 1) reports the total number of students included in the current study. The second section of the table (columns 2 and 3, highlighted in gray) presents the passing rates for the STAAR assessment and passing rates for the course, respectively. The third section (columns 4 through 7) presents the rates for passing both the STAAR assessment and the course, for passing the STAAR assessment only, for passing the course only, and the percentage of students who did not pass neither the STAAR

assessment nor the course.

Overall, the study included 374,126 students where 88 percent of students passed the STAAR Biology assessment and 91 percent of them were deemed having passed the Biology course. Eighty-three percent of students passed both STAAR Biology assessment and the Biology course. The overall percentage of students who passed the course (91 percent) was three percent higher than those who passed the STAAR Biology (88 percent). There was a small percentage of students that passed only the STAAR assessment (5 percent). The proportion of students passing only the Biology course was eight percent. Four percent of students passed neither the STAAR assessment nor the course.

**Table 1** Overall Student Performance for STAAR EOC Biology and Biology Course

Student Course Enrollment	STAAR Passing Rate	Course Passing Rate	Passing Both	Passing STAAR Only	Passing Course Only	Not Passing Either
374,126	88%	91%	83%	5%	8%	4%

Note: This table is based on students who have both STAAR and course data for Biology available.

The remainder of this report is dedicated to presenting similar results disaggregated by student groups based on ethnicity, sex, and economic status. Some groups of students constitute a large portion of the population, and others a small portion. To avoid generating imprecise results due to small sample sizes for some student groups, the selected student groups that was analyzed in this section only included those that correspond to five percent or more of the total number of students enrolled. Table 2 shows the population size and corresponding percentage of the included subgroups.

**Table 2** Students Population and Percentage for Subgroups

	Subgroup	Number of Students	Percentage
Ethnicity	Black/African American	47,602	13%
	Hispanic/Latino	192,287	51%
	White	109,003	29%
Sex	Female	183,231	49%
	Male	190,894	51%
Economic Status	Economically Disadvantaged	205,501	55%
	Non-Economically Disadvantaged	168,531	45%

## Student Performance by Ethnicity

Across all ethnic groups, the passing rates for Biology course were higher than the passing rates of the STAAR Biology assessment. The percentages passing the STAAR assessment, the course, and both the assessment and course were higher for White students than for Black/African American students and Hispanic/Latino students. The comparison results across three ethnic groups are shown in Table 3, the passing rates for the Biology course ranged from 87 percent to 95 percent, and the passing rates for STAAR Biology assessment ranged from 83 percent to 94 percent. The specific results for each ethnicity group are presented below.

**Black/African American Students.** Results for Black/African American students are presented in the first row in Table 3. Among 47,602 Black/African American students, the overall percentage of students passing the Biology course (87 percent) was higher than those who passed the STAAR Biology assessment (83 percent). Seventy-six percent of Black/African American students passed both the assessment and the Biology course. Seven percent passed only the STAAR Biology only, 11 percent passed only the Biology course, and six percent passed neither.

**Table 3** *Student Performance by Ethnicity for STAAR EOC Biology and Biology Course*

Ethnicity	Student Course Enrollment	STAAR Passing Rate	Course Passing Rate	Passing Both	Passing STAAR Only	Passing Course Only	Not Passing Either
Black/African American	47,602	83%	87%	76%	7%	11%	6%
Hispanic/Latino	192,287	85%	88%	79%	6%	10%	5%
White	109,003	94%	95%	91%	3%	4%	2%

Note: This table is based on students who have both STAAR and course data for Biology available.

**Hispanic/Latino Students.** The total sample size for Hispanic/Latino students was 192,287. For all Hispanic/Latino students, 85 percent of them passed the STAAR assessment while 88 percent passed the Biology course. Seventy-nine percent of Hispanic/Latino students passed both the STAAR Biology assessment and the Biology course. Six percent of Hispanic/Latino students passed the STAAR Biology assessment only while 10 percent passed the Biology course only. Five percent of students passed neither.

**White Students.** Results for White students are presented in the third row in Table 3. For 109,003 White students, 95 percent of them received the course credit, which was one percent higher than those who passed the STAAR assessment (94 percent). Ninety-one percent of White students passed both STAAR Biology assessment and the Biology course. Three percent of them passed STAAR Biology assessment only, four percent passed the Biology course only, and two percent passed neither.

### Student Performance by Sex

In the current study, 183,231 female students and 190,894 male students enrolled in the Biology course. Female students had slightly higher passing rates for the STAAR Biology assessment than male students. Furthermore, the Biology course passing rate was also higher for females than males. Specific details for each sex group are presented in Table 4.

**Female Students.** Results for female students are presented in Table 4. Ninety percent of female students who enrolled in the Biology course passed the STAAR Biology assessment while 93 percent of female students passed the Biology course. Eighty-six percent of female students passed both the STAAR Biology assessment and the Biology course. Four percent of female students passed only the STAAR Biology assessment, seven percent passed the Biology course only, whereas three percent passed neither.

**Table 4** *Student Performance by Sex for STAAR EOC Biology and Biology Course*

Sex	Student Course Enrollment	STAAR Passing Rate	Course Passing Rate	Passing Both	Passing STAAR Only	Passing Course Only	Not Passing Either
Female	183,231	90%	93%	86%	4%	7%	3%
Male	190,894	86%	89%	80%	6%	9%	5%

Note: This table is based on students who have both STAAR and course data for Biology available.

**Male Students.** Results for male students are presented in the second row in Table 4. Among all male students, 86 percent of them passed the STAAR Biology assessment whereas 89 percent passed the Biology course. Eighty percent of male students passed both the Biology assessment and the course. Six percent of male students only passed STAAR Biology assessment, nine percent only passed the Biology course, and five percent passed neither.

## Student Performance by Economic Status

Overall, the rates for non-economically disadvantaged students were higher than for economically disadvantaged students on passing the STAAR Biology assessment, passing the Biology course, and passing both. The passing rates results for economically disadvantaged students and non-economically disadvantaged students are presented in Table 5.

**Economically Disadvantaged Students.** Among 205,501 economically disadvantaged students who enrolled in the Biology course, 83 percent and 87 percent of them passed the STAAR Biology assessment and the Biology course, respectively. The rate of passing both was 76 percent. Seven percent of economically disadvantaged students passed the STAAR Biology assessment only, 11 percent passed only the Biology course, and six percent passed neither.

**Table 5** Student Performance by Economic Status for STAAR EOC Biology and Biology Course

Economic Status	Student Course Enrollment	STAAR Passing Rate	Course Passing Rate	Passing Both	Passing STAAR Only	Passing Course Only	Not Passing Either
Economically Disadvantaged	205,501	83%	87%	76%	7%	11%	6%
Non-Economically Disadvantaged	168,531	94%	95%	91%	3%	4%	2%

Note: This table is based on students who have both STAAR and course data for Biology available.

**Non-Economically Disadvantaged Students.** There were 168,531 non-economically disadvantaged students that took the Biology course. Ninety-four percent of them passed the STAAR Biology assessment while 95 percent of the students received credits for the Biology course. The difference in passing rates between assessment and course was one percent. For non-economically disadvantaged group, 91 percent of them passed both STAAR Biology assessment and the course. Three percent of the students passed only the STAAR Biology assessment, four percent passed only the Biology course, and two percent passed neither the assessment nor the course.

## Summary

This current study compared the passing rates for the STAAR Biology assessment and the Biology course. The overall results of the study showed that the majority of students in the current study (83 percent) passed both the STAAR Biology assessment and the Biology course. The percentage of students passing the Biology course (91 percent) was slightly higher than the percentage passing the STAAR Biology assessment (88 percent). This finding was consistent across all subgroups in the current study.

Across three ethnic groups, passing rates regarding both the STAAR Biology assessment and the course ranged from 76 to 91 percent. In addition, the passing rate for the Biology course (87 to 95 percent) was higher than the passing rate for the STAAR Biology assessment (83 to 94 percent) across Black/African American, Hispanic/Latino and White groups. Regarding the passing rates between female and male students, the STAAR Biology assessment had lower passing rates (90 and 86 percent) than the course (93 and 89 percent). Female group had a higher rates in passing both the assessment and the course (86 percent) than that of the male group (80 percent). In terms of economic status, the results of the study showed that the passing rates on the STAAR Biology assessment, the course, and on both STAAR Biology and the course was higher for the non-economically disadvantaged students than for the economically disadvantaged ones. Additionally, both groups had a higher passing rate on the Biology course. The Biology course passing rates were 87 percent and 95 percent, respectively, for the economically disadvantaged group and the non-economically disadvantaged group whereas the passing rates for the STAAR Biology assessment were 83 percent and 94 percent, respectively.