

# Legislative Report Senior Year Plus STEM



January 2020

State of Iowa  
Department of Education  
Grimes State Office Building  
400 E. 14<sup>th</sup> Street  
Des Moines, IA 50319-0146

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## **LEGISLATIVE REQUIREMENT - IOWA CODE 261E.3 J**

All eligible postsecondary institutions providing programming under this chapter shall include the unique student identifier assigned to students while in the kindergarten through grade twelve system as a part of the institution's student data management system. Eligible postsecondary institutions providing programming under this chapter shall cooperate with the department on data requests related to the programming. All eligible postsecondary institutions providing programming under this chapter shall collect data and report to the department on the proportion of females and minorities enrolled in science, technology, engineering, and mathematics-oriented educational opportunities provided in accordance with this chapter. The department shall submit the programming data and the department's findings and recommendations in a report to the general assembly annually by January 15.

## ADVANCED PLACEMENT ENROLLMENT IN STEM

### ADVANCED PLACEMENT COURSE ENROLLMENT BY RACE/ETHNICITY

Race/ Ethnicity	2016-17				2017-18				2018-2019			
	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent *	Number of STEM	Percent
Asian	979	5.8%	381	7.5%	1,108	6.3%	441	8.5%	1,160	6.5%	486	8.5%
Black	777	4.6%	169	3.3%	754	4.3%	155	3.0%	891	5.0%	174	3.1%
Hispanic	1,456	8.6%	306	6.0%	1,392	7.9%	312	6.0%	1,574	8.8%	376	6.6%
Multi-racial	561	3.3%	148	2.9%	660	3.8%	162	3.1%	702	3.9%	190	3.3%
Native American	29	0.2%	10	0.2%	31	0.2%	8	0.2%	27	0.2%	5	0.1%
Pacific Islander	17	0.1%	4	0.1%	22	0.1%	4	0.1%	17	0.1%	7	0.1%
White	13,105	77.4%	4,048	79.9%	13,555	77.4%	4,100	79.1%	13,549	75.6%	4,451	78.2%
Total	16,924	100.0%	5,066	100.0%	17,522	100.0%	5,182	100.0%	17,920	100.0%	5,689	100.0%

Source: Iowa Department of Education, Student Reporting in Iowa collection

\* May not equal 100% due to rounding

## ADVANCED PLACEMENT COURSE ENROLLMENT BY GENDER

Gender	2016-17				2017-18				2018-19			
	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent*	Number of STEM	Percent
Female	9,318	55.1%	2,326	45.9%	9,595	54.8%	2,419	46.7%	9,906	55.3%	2,651	46.6%
Male	7,606	44.9%	2,740	54.1%	7,927	45.2%	2,763	53.3%	8,014	44.7%	3,038	53.4%
Total	16,924	100.0%	5,066	100.0%	17,522	100.0%	5,182	100.0%	17,920	100.0%	5,689	100.0%

Source: Iowa Department of Education, Student Reporting in Iowa collection

\* May not equal 100% due to rounding

## CONCURRENT ENROLLMENT IN STEM

### CONCURRENT ENROLLMENT BY RACE/ETHNICITY

Race/ Ethnicity	2016-17			2017-18			2018-2019					
	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent *	Number of STEM	Percent
Asian	1,366	3.1%	695	4.3%	1,488	3.1%	624	3.8%	1,442	3.0%	658	4.3%
Black	1,308	2.9%	524	3.2%	1,539	3.2%	604	3.7%	1,501	3.2%	584	3.8%
Hispanic	3,453	7.7%	1,445	8.9%	3,868	8.1%	1,488	9.1%	4,090	8.6%	1432	9.4%
Multi-racial	1,068	2.4%	440	2.7%	1,254	2.6%	476	2.9%	1,293	2.7%	473	3.1%
Native American	117	0.3%	49	0.3%	119	0.3%	42	0.3%	120	0.3%	44	0.3%
Pacific Islander	60	0.1%	19	0.1%	64	0.1%	27	0.2%	75	0.2%	21	0.1%
White	37,294	83.5%	13,155	80.6%	39,231	82.5%	13,044	80.0%	39,123	82.1%	11978	78.9%
Total	44,666	100.0%	16,327	100.1%	47,563	100.0%	16,305	100.0%	47,644	100.0%	15190	100.0%

Source: Iowa Department of Education, Student Reporting in Iowa collection

\* May not equal 100% due to rounding

## CONCURRENT ENROLLMENT BY GENDER

Gender	2016-17				2017-18				2018-19			
	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent*	Number of STEM	Percent
Female	22,172	49.6%	7,253	44.4%	24,016	50.4%	7,426	45.5%	24,371	51.2%	6,913	45.5%
Male	22,494	50.4%	9,074	55.6%	23,637	49.6%	8,879	54.5%	23,273	48.8%	8,277	54.5%
Total	44,666	100.0%	16,327	100.0%	47,653	100.0%	16,305	100.0%	47,644	100.0%	15,190	100.0%

Source: Iowa Department of Education, Student Reporting in Iowa collection

\* May not equal 100% due to rounding

## POSTSECONDARY ENROLLMENT OPTIONS IN STEM

### POSTSECONDARY ENROLLMENT OPTIONS BY RACE/ETHNICITY

Race/ Ethnicity	2016-17				2017-18				2018-2019			
	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent *	Number of STEM	Percent
Asian	156	3.0%	74	6.0%	86	6.1%	50	10.0%	72	7.1%	43	11.7%
Black	45	0.9%	11	0.9%	14	1.0%	8	1.6%	8	0.8%	1	0.3%
Hispanic	182	3.5%	32	2.6%	68	4.8%	29	5.8%	47	4.6%	18	4.9%
Multi-racial	80	1.6%	25	2.0%	29	2.1%	12	2.4%	32	3.2%	10	2.7%
Native American	7	0.1%	2	0.2%	-	0.0%	-	0.0%	-	0.0%	-	0.0%
Pacific Islander	2	0.0%	1	0.1%	1	0.1%	-	0.0%	-	0.0%	-	0.0%
White	4,669	90.8%	1,082	88.2%	1,214	86.0%	400	80.2%	855	84.3%	294	80.3%
Total	5,141	100.0%	1,227	100.0%	1,412	100.0%	499	100.0%	1,014	100.0%	366	100.0%

Source: Iowa Department of Education, Student Reporting in Iowa collection

\* May not equal 100% due to rounding

## POSTSECONDARY ENROLLMENT OPTIONS BY GENDER

Gender	2016-17				2017-18				2018-19			
	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent*	Number of STEM	Percent	Number of Courses	Percent*	Number of STEM	Percent
Female	3,234	62.9%	696	56.7%	850	13.1%	260	52.1%	595	58.7%	155	42.3%
Male	1,907	37.1%	531	43.3%	562	86.9%	239	47.9%	419	41.3%	211	57.7%
Total	5,141	100.0%	1,227	100.0%	1,412	100.0%	499	100.0%	1,014	100.0%	366	100.0%

Source: Iowa Department of Education, Student Reporting in Iowa collection

\* May not equal 100% due to rounding

## IOWA STUDENT DEMOGRAPHIC INFORMATION

### 2018-19 K-12 ENROLLMENT BY GENDER

Gender	Student Count	Percent
Female	234,729	48.5%
Male	248,862	51.5%
Total	483,591	100%

### 2018-19 K-12 ENROLLMENT BY RACE/ETHNICITY

Race/Ethnicity	Student Count	Percent
African American/Black	30,732	6.4%
American Indian	1,837	0.4%
Asian	12,280	2.5%
Hawaiian/Pacific Islander	1,507	0.3%
Hispanic	53,819	11.1%
Multi-race	20,201	4.2%
White	363,215	75.1%
Total	483,591	100%

## FINDINGS AND RECOMMENDATIONS

### Findings

This report provides information about enrollment patterns of students by race/ethnicity and gender in Senior Year Plus opportunities. Data contained in this report shows an increase in the overall enrollment trends for two of the three Senior Year Plus areas. The three-year trend, between 2016-17 and 2018-19, saw an overall increase in Advanced Placement (AP) and Concurrent Enrollment, while Postsecondary Enrollment Options (PSEO) enrollment declined. The drop in PSEO is not surprising because of recent changes to PSEO programming that has impacted utilization of this opportunity by students.

This report also provides information about the pattern of student enrollment by race/ethnicity and gender in Science, Technology, Engineering, and Math (STEM) Senior Year Plus courses. Of the three areas, only AP saw an overall increase in STEM opportunities. Both Concurrent Enrollment and PSEO both saw an overall decline in STEM courses taken in 2018-19 from the prior year.

In AP STEM courses, all minority student groups, except Native American students, either remained the same or saw an increase in the percent of STEM courses taken from 2017-18 to 2018-19. While the overall number of STEM Concurrent Courses declined, the percent of Asian, Black, Hispanic and Multi-racial students enrolling increased from 2016-17 to 2018-19.

When examining the gender difference of Senior Year Plus areas, mixed results are found. One positive finding is an overall increase in the number of female students enrolling in AP courses increased from 2016-17 to 2018-19. Additionally, the three-year trend shows a large increase in STEM AP course enrollment for female students. However, the year-to-year changes from 2017-18 to 2018-19, show a slight decline in the percent of female student enrollment in AP STEM courses. The three-year trend, between 2016-17 and 2018-19, shows increases in female enrollment in Concurrent STEM courses while the year-to-year enrollment had no change.

### Recommendations

The largest component of the Senior Year Plus program are Concurrent Enrollment courses. This is due to the supplementary weighting incentive which was put in place to support college level course enrollment opportunities for Iowa students. While this incentive exists for Concurrent Enrollment, the additional weighted funding is not available for AP or PSEO courses. This lack of an incentive has an impact on overall enrollment in these course areas. In 2018-19, there were 47,644 Concurrent Enrollments course taken by Iowa students. This compares to 17,920 enrollments in AP courses and 1,014 enrollments in PSEO courses. Over time, both Concurrent Enrollment has continued to drop along with AP courses taken, while PSEO enrollment has declined.

Over the period covered in this report, Concurrent Enrollment has seen increases in course utilization overall as well as by multiple race/ethnic groups. In 2018-19, there was an overall decline in the STEM Concurrent Enrollment courses from the prior year and the three-year

trend. At the same time, there were increases in the multiple race/ethnic student groups including: Asian, Black, Hispanic and Multi-racial students.

The support for STEM in Iowa starts at the highest levels of state government. Governor Reynolds has been a champion for STEM in Iowa since the inception of the STEM Council in 2011. A goal of the statewide STEM Council is to enhance Iowa's PK-12 talent pipeline which will result in increased interest in STEM careers. In the fiscal year 2020 budget, \$4,967,289 was allocated to support STEM program funding statewide. The below table provides an overview of these funding areas:

<b>Program</b>	<b>Funding</b>
Regional STEM Scale-Up Programming - \$552,631.50 per STEM Region with six regions	\$3,315, 789
STEM Teacher Externships Program	\$260,000
School-Business Partnerships Support – STEM BEST Program at \$25,000 per award	\$521,375
Computer Science in Elementary Expansion	\$300,000
Statewide IT Certification Program - Microsoft Imagine Academy \$	\$500,000
Statewide Teacher Professional Development in STEM Equity and/or Digital Literacy	\$70,125
<b>TOTAL</b>	<b>\$4,967,289</b>

While this report cannot determine if there is a causal relationship between program funding for STEM and an increase interest in STEM, it is notable that there has been an increase in STEM course-taking for many minority student groups and female students with this state level focus on STEM.