

Legislative Report

Senior Year Plus STEM



January 15, 2019

State Board of Education

State of Iowa
Department of Education
Grimes State Office Building
400 E. 14th 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	2015-16				2016-17				2017-18			
	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	939	5.70%	404	8.10%	979	5.80%	381	7.50%	1,108	6.30%	441	8.50%
Black	722	4.40%	159	3.20%	777	4.60%	169	3.30%	754	4.30%	155	3.00%
Hispanic	1,348	8.20%	270	5.40%	1,456	8.60%	306	6.00%	1,392	7.90%	312	6.00%
Multi-racial	573	3.50%	162	3.30%	561	3.30%	148	2.90%	660	3.80%	162	3.10%
Native American	33	0.20%	10	0.20%	29	0.20%	10	0.20%	31	0.20%	8	0.20%
Pacific Islander	19	0.10%	4	0.10%	17	0.10%	4	0.10%	22	0.10%	4	0.10%
White	12,871	78.00%	3,979	79.80%	13,105	77.40%	4,048	79.90%	13,555	77.40%	4,100	79.10%
Total	16,505	100.10%	4,988	100.10%	16,924	100.00%	5,066	100.00%	17,522	100.00%	5,182	100.00%

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

* May not equal 100% due to rounding

ADVANCED PLACEMENT COURSE ENROLLMENT BY GENDER

Gender	2015-16				2016-17				2017-18			
	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	9,003	54.60%	2,248	45.10%	9,318	55.10%	2,326	45.90%	9,595	54.80%	2,419	46.70%
Male	7,502	45.50%	2,740	54.90%	7,606	44.90%	2,740	54.10%	7,927	45.20%	2,763	53.30%
Total	16,505	100.10%	4,988	100.00%	16,924	100.00%	5,066	100.00%	17,522	100.00%	5,182	100.00%

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

* May not equal 100% due to rounding

CONCURRENT ENROLLMENT IN STEM

CONCURRENT COURSE ENROLLMENT BY RACE/ETHNICITY

Race/Ethnicity	2015-16				2016-17				2017-18			
	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	1,219	2.80%	564	3.70%	1,366	3.10%	695	4.30%	1,488	3.10%	624	3.80%
Black	1,224	2.80%	455	3.00%	1,308	2.90%	524	3.20%	1,539	3.20%	604	3.70%
Hispanic	3,154	7.30%	1,329	8.70%	3,453	7.70%	1,445	8.90%	3,868	8.10%	1,488	9.10%
Multi-racial	981	2.30%	351	2.30%	1,068	2.40%	440	2.70%	1,254	2.60%	476	2.90%
Native American	116	0.30%	47	0.30%	117	0.30%	49	0.30%	119	0.30%	42	0.30%
Pacific Islander	39	0.10%	14	0.10%	60	0.10%	19	0.10%	64	0.10%	27	0.20%
White	36,324	84.40%	12,543	82.00%	37,294	83.50%	13,155	80.60%	39,231	82.50%	13,044	80.00%
Total	43,057	100.00%	15,303	100.10%	44,666	100.00%	16,327	100.10%	47,563	100.00%	16,305	100.00%

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

* May not equal 100% due to rounding

CONCURRENT COURSE ENROLLMENT BY GENDER

Gender	2015-16				2016-17				2017-18			
	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	21,155	49.10%	6,593	43.10%	22,172	49.60%	7,253	44.40%	24,016	50.40%	7,426	45.50%
Male	21,902	50.90%	8,710	56.90%	22,494	50.40%	9,074	55.60%	23,637	49.60%	8,879	54.50%
Total	43,057	100.00%	15,303	100.00%	44,666	100.00%	16,327	100.00%	47,653	100.00%	16,305	100.00%

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

* May not equal 100% due to rounding

POSTSECONDARY ENROLLMENT OPTIONS ENROLLMENT IN STEM

POSTSECONDARY ENROLLMENT OPTIONS COURSE ENROLLMENT BY RACE/ETHNICITY

Race/Ethnicity	2015-16				2016-17				2017-18			
	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	113	2.30%	62	5.20%	156	3.00%	74	6.00%	86	6.10%	50	10.00%
Black	29	0.60%	4	0.30%	45	0.90%	11	0.90%	14	1.00%	8	1.60%
Hispanic	148	3.00%	19	1.60%	182	3.50%	32	2.60%	68	4.80%	29	5.80%
Multi-racial	72	1.40%	23	1.90%	80	1.60%	25	2.00%	29	2.10%	12	2.40%
Native American	10	0.20%	-	0.00%	7	0.10%	2	0.20%	-	0.00%	-	0.00%
Pacific Islander	4	0.10%	1	0.10%	2	0.00%	1	0.10%	1	0.10%	-	0.00%
White	4,639	92.50%	1,090	90.90%	4,669	90.80%	1,082	88.20%	1,214	86.00%	400	80.20%
Total	5,015	100.10%	1,199	100.00%	5,141	100.00%	1,227	100.00%	1,412	100.00%	499	100.00%

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

* May not equal 100% due to rounding

POSTSECONDARY ENROLLMENT OPTIONS COURSE ENROLLMENT

Gender	2015-16				2016-17				2017 8			
	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	3,114	62.10%	652	54.40%	3,234	62.90%	696	56.70%	850	13.10%	260	52.10%
Male	1,901	37.90%	547	45.60%	1,907	37.10%	531	43.30%	562	86.90%	239	47.90%
Total	5,015	100.00%	1,199	100.00%	5,141	100.00%	1,227	100.00%	1,412	100.00%	499	100.00%

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

* May not equal 100% due to rounding

2017-18 K-12 ENROLLMENT BY GENDER

Gender	Count	Percent
Female	234,117	48.5%
Male	248,374	51.5%
Total	482,491	100%

2017-18 K-12 ENROLLMENT BY RACE/ETHNICITY

Race/Ethnicity	Student Count	Percent
African American/Black	29,902	6.2%
American Indian	1,776	0.4%
Asian	12,175.68	2.5%
Hawaiian/Pacific Islander	1,314	0.3%
Hispanic	52,645	10.9%
Multi-race	19,227	4.0%
White	365,459	75.7%
Total	482,491	100%

FINDINGS AND RECOMMENDATIONS

Findings

Data contained in this report shows an increase in the overall enrollment trends for two of the three Senior Year Plus areas. Both Advanced Placement (AP) and Concurrent Enrollment saw significant increases in student enrollments and courses taken, while Postsecondary Enrollment Options (PSEO) declined. The three year trend, between 2015-16 and 2017-18, also shows increases in STEM course areas in both AP and Concurrent Enrollment. Recent changes to PSEO programming statewide has decreased utilization in this Senior Year Plus area. Overall, enrollment in PSEO as well as STEM enrollment in PSEO courses has declined.

This report provides information about enrollment patterns of students by gender and race/ethnicity in Senior Year Plus opportunities. Overall, the percent of male to female enrollment in AP courses has stayed about the same between 2015-16 and 2017-18. Concurrent enrollment shows a slight increase in the percent of female students enrolled and the percent taking STEM Concurrent Enrollment courses.

When examining the trend line of Concurrent Courses enrollments by race/ethnicity, there is a decrease in the number of courses and STEM courses by White students. At the same time you see an increase in enrollments by several race groups. Increases can be seen overall and in STEM Concurrent Courses for Asian, Black, Hispanic and Multi-racial students.

The same pattern can be seen in overall AP and AP STEM course enrollments. Between 2015-16 and 2017-18 this is an overall decrease for White students. During this period you also see mixed results for different minority and ethnic students groups with some seeing increase and some showing decreases in overall AP course enrollments and AP STEM course enrollments.

Recommendations

The largest component of the Senior Year Plus program is Concurrent Enrollment courses. This is due to the supplementary weighting incentive which exists to support enrollment in Concurrent Enrollment courses. The same funding incentive is not available for AP or PSEO courses which impacts overall enrollment. In 2017-18, there were 47,563 Concurrent Enrollment courses taken by Iowa students. This compares to 17,522 enrollments in AP courses and 1,412 enrollments in PSEO courses.

Over the period covered in this report, Concurrent Enrollment has seen increases in course utilization overall as well as by multiple race/ethnic groups. This same pattern can be seen in STEM Concurrent enrollment courses. Additionally, there is a slight shift with an increase in STEM course utilization by female students. This same trend can be found when examining AP overall and AP STEM course enrollments.

In July 2011, former Governor Branstad signed Executive Order 74 creating the Iowa Governor's STEM Advisory Council. Governor Reynolds has been a champion for STEM in Iowa since the inception of the STEM council. A goal of this statewide initiative is to enhance Iowa's PK-12 talent pipeline which will result in increased interest in a STEM career. While this report cannot determine if there is a causal relationship between the focus on STEM, it is

notable that there is an increase in STEM course-taking patterns with this increased focus on STEM statewide.