

Dual enrollment in Alaska: A 10-year retrospective and outcome analysis



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This paper explores University of Alaska dual enrollment (DE) offerings from 2008 to 2017. It details the distribution of programs across geographic and demographic groups, examines student participation and academic outcomes over this 10-year period, and describes how current DE activities compare to the decade prior. DE enrollments have increased by 85% in the past 10 years, while headcount has increased by 49%, indicating that, on average, students are taking more DE courses while in high school. DE students complete 93% of their courses satisfactorily; 66% apply to a UA institution when they graduate high school and 41% attend. Though the program is more representative than it was 10 years ago, our analysis notes a persistent participation and performance gap for rural and Alaska Native students.

Definition and objectives of dual enrollment

DE programs register students in postsecondary classes while they are still in high school. These programs gained popularity in the 1990s, and at the national level, participation has increased steadily since then, especially among minorities and rural schools (Thomas et al., 2013). Currently, 10% of high school students in the nation take college classes (Thomas et al., 2013).

Program goals include reducing postsecondary tuition costs and student debt, shortening the time to degree completion, creating postsecondary access for low-income and first-generation students, developing students' confidence from early success in a supported environment, and providing high-achieving students opportunities to take classes with other academically serious individuals. Critics of DE programs note these activities can deter students from participating in other beneficial programs and extracurricular activities, and that poor performance in DE classes can affect students' competitiveness or financial aid eligibility for postsecondary programs. Other concerns include credit transferability and the quality of the learning experience.

For the most part, empirical evidence supports DE: it is correlated with positive high school outcomes including increased achievement and graduation rates (Karp et al., 2007; WWC, 2017); and it supports postsecondary outcomes including readiness (Bautsch, 2014; WWC, 2017), enrollment (Bautsch, 2014; Karp et al., 2007; North & Jacobs, 2010; Swanson, 2008; WWC, 2017), retention (Karp et al., 2007; North & Jacobs, 2010; Swanson, 2008), degree attainment (An, 2013; Blankenberger et al., 2017; Shapiro et al., 2014; WWC 2017), and time to degree completion (Marks & Lord, 2011). However, research has also documented inequities in effectiveness for low-income students, first-generation college students, and students of color (An, 2013; Taylor, 2015).

Scope of analysis

This analysis used 10 years of enrollment records¹ (fall 2008 through summer 2018) from University of Alaska (UA) institutional databases. We include all students who had college credit transcribed before their high school graduation date; for those whose records were missing a high school graduation date, we inferred graduation date to include students who attempted college classes when they were 17 or younger and not matriculated in a UA institution.² Using this operational definition to identify DE students, we analyzed what courses they took, who participated, and how they performed on the dimensions of gender, community type, and race.

Our analysis includes 15,473 students who attended Alaska public neighborhood high schools. It excludes 3,465 who attended high school out-of-state; in Alaska boarding schools, homeschools, correctional facilities, or private schools; Alaska GED students; and those with missing high school data (see figure 1). Because homeschool students constitute a significant proportion of Alaska's high school youth, they are addressed separately on page 5.

Operational definitions

Alaska public neighborhood schools – Government-funded schools run by local school boards that serve all residents within district boundaries

DE participant – A student who was transcribed at least one University of Alaska college course prior to his or her high school graduation date

Limitations of this analysis

This project was a preliminary descriptive analysis, and though it was done with integrity, it has two key limitations related to the data set: missing data within it, and its scope.

Missing and limited data – Though the data quality has improved in recent years, missing data and systematic omissions in student demographic and secondary academic data affected our analysis.

The UA system – Our analysis does not reflect all DE done in Alaska, nor all postsecondary outcomes. It excludes non-UA colleges (such as IIGSAVIG College and Alaska Pacific University) that may have offered DE credit. It also only explores college attendance outcomes at UA and excludes non-UA colleges and postsecondary programs that may have received DE participants as students following their high school graduation. Additionally, during the period of analysis, each UA major academic unit (MAU, i.e., Anchorage, Fairbanks, and Southeast) had different DE policies (including those related to student fees, instructor qualifications, and registration) that likely affected student access to and success in DE courses. Forthcoming UA dual enrollment guidelines will align processes across the system, and will facilitate future analyses and comparisons.

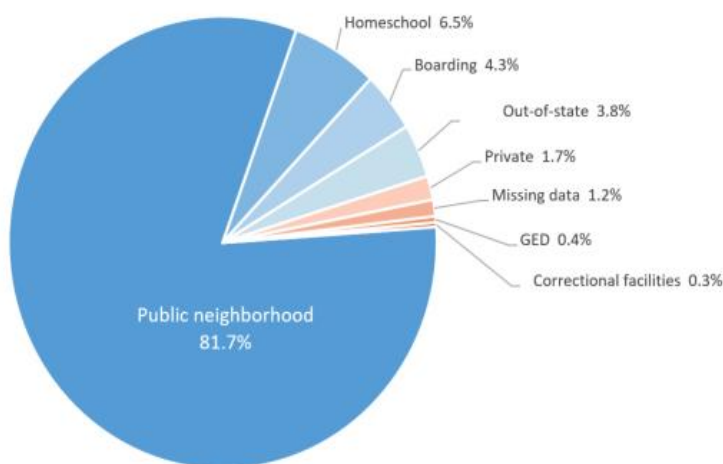
What DE courses are offered, and where?

Overall in Alaska, DE enrollments increased 85% between 2008 and 2017. While urban, rural hub, and remote rural communities have all grown their DE enrollments in the past decade, the distribution of course types - and the pathways that these experiences prepare students to pursue - varies by community type. Urban areas have reduced their Career and Technical Education (CTE) offerings and grown baccalaureate courses, while rural communities maintain a stronger CTE emphasis (see figure 2).

In 2008, CTE courses constituted 72% of all UA DE enrollments in Alaska. CTE courses accounted for over three-quarters (76%) of enrollments in urban Alaska, and nearly half of the enrollments in rural hub and remote rural communities (43 and 47%, respectively). In 2017, the distribution of urban enrollments reversed - overall CTE enrollments in urban communities dropped, and humanities and STEM enrollments increased significantly. By contrast, the proportion of CTE enrollments held steady in hub and remote rural communities, at 43 and 49%, respectively.

Figure 1

DE participation by high school type



Though the vast majority of UA's DE participants are Alaska public neighborhood high school students, 18% of students represent other high school types.

Who participates?

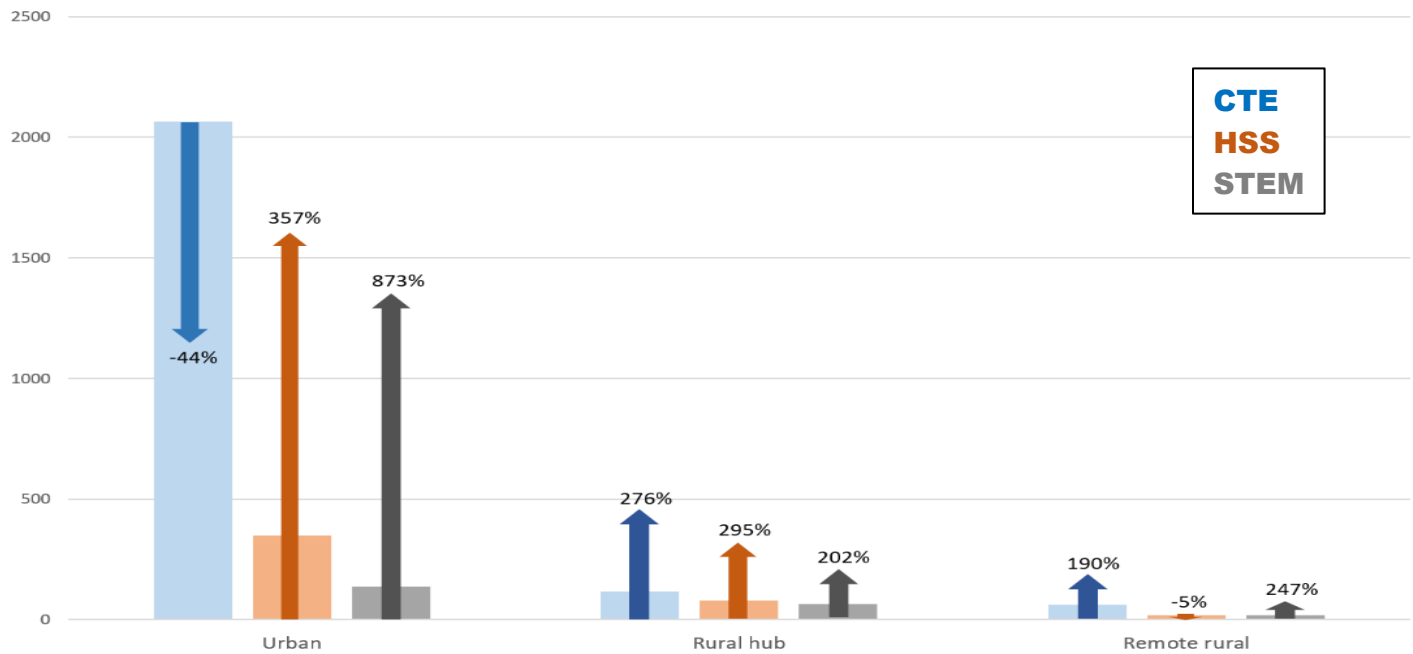
Since 2008, about one-third of participants are under the age of 16, and the distribution of student ages has not changed as the DE program has grown. Overall, annual participation (unduplicated headcount) in DE increased by 49% between 2008 and 2017; it peaked in 2010-12³, declined until 2014-15, and has risen steadily since (see figure 3). However, this increase was not evenly experienced by all population groups. While the majority of public neighborhood school DE participants in 2017 were White (41%) and urban (70%), non-White and rural student participation has increased significantly since 2008.

Measured at high school graduation, DE participants look much like high school graduates

statewide (see table 1). Though 18% of Alaska's high school graduates are Alaska Native and 9% attend in rural hubs, among those graduates who participated in DE, Alaska Native and rural hub students make up 26 and 16% of the total headcount, respectively. The shift since 2008 indicates that the dual enrollment program used to be more disproportionately White and urban, and as the program has grown, participation has become more representative.

Figure 2

Change in DE courses by type and location, 2008-2017



DE enrollments have increased statewide and in all course categories, with the exception of CTE in urban communities, where enrollments decreased by 44% since 2008, and a negligible decline in HSS courses in remote rural communities. The OTHER course category, which constituted 6% of enrollments in 2008 and 8% in 2017, is not represented in this graph.

Operational definitions

Enrollment – Unique student course registrations; for example, a student taking 3 classes (9 credits) would constitute 3 enrollments.

Community type⁴

- **Urban** - Cities and communities within one hour’s ferry or driving time to a city with amenities, such as hospitals and shopping centers
- **Rural hub** - On-road communities more than one hour’s driving time to a city with amenities, and communities accessible only by plane but that serve as transportation centers for the region
- **Remote rural** - Off-road communities with small populations accessible by plane from rural hubs

Course type⁵

- **Career and Technical Education (CTE)** - Courses typically applied to a specific career field, such as culinary arts, education, health, information technology, manufacturing and welding
- **Humanities and Social Sciences (HSS)** - General education courses typically applied to a 4-year liberal arts degree, such as communications, English, history, world languages, and psychology
- **Science Technology Engineering and Math (STEM)** - Includes mathematics, natural sciences, engineering
- **Other** - Courses that did not fit into the three main categories, such as college studies, developmental education, physical education, and region-specific courses

Table 1

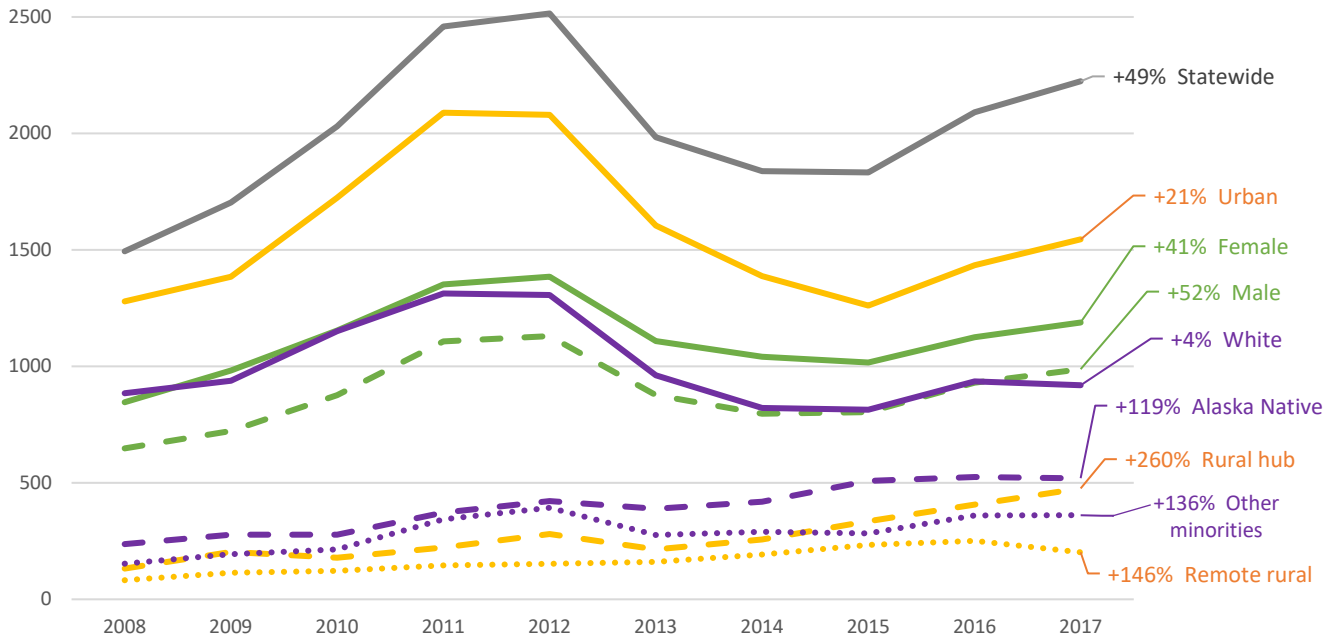
2017 DE participation by demographic group

	Public high school graduates who participated in DE (%)	All Alaska public high school graduates (%)
Race⁶		
White	57	53
Alaska Native	26	18
Other minority	18	29
Community type*		
Urban	74	82
Rural hub	16	9
Remote rural	10	9

The distribution of students graduating with DE enrollments shows a slight over-representation of White, Alaska Native, and rural hub students relative to the broader high school graduating class, but is approaching the statewide demographic distribution.

*Community type categories reflect Alaska’s 2016 graduating class.

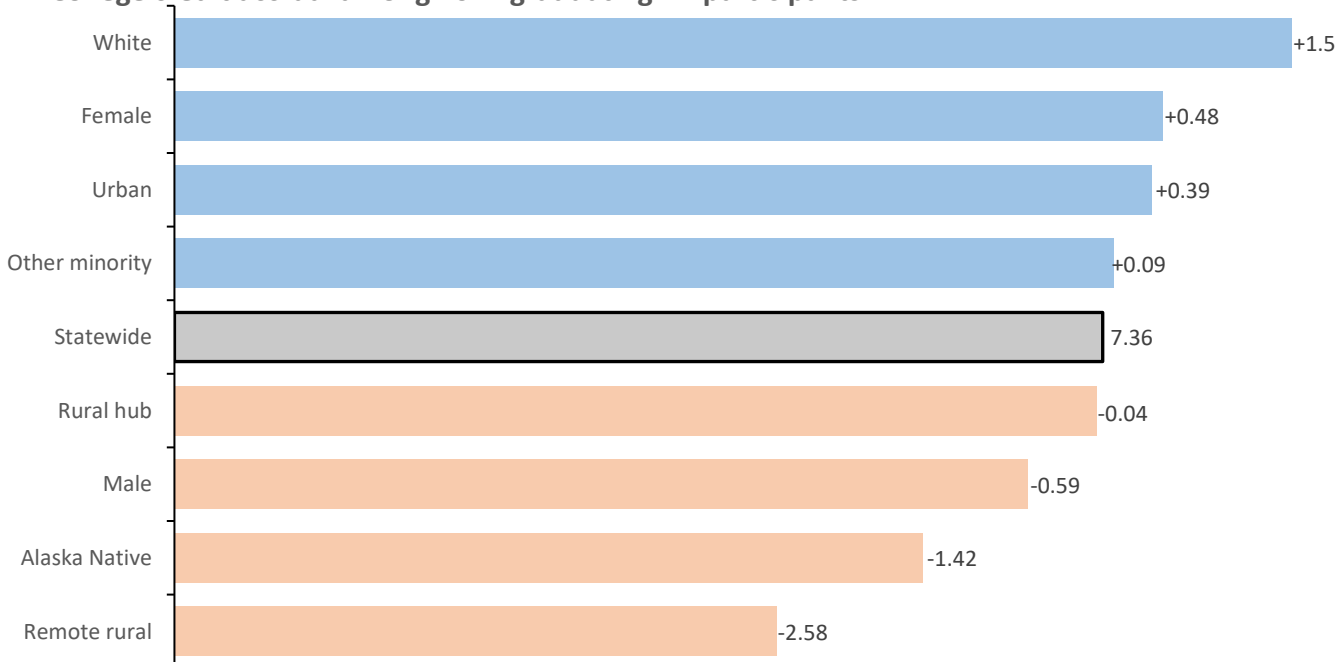
Figure 3
Unduplicated headcount by year across demographic groups



Statewide, headcount in DE programs has increased by 49% since 2008, but minority and rural student headcount has more than doubled. Headcount increased most dramatically for rural hub students.

Though participation by headcount has increased, our analysis found inequities in the number of credits earned. As figure 4 depicts, at the time of their high school graduation in 2017, White students earned (on average) almost a full course more than Alaska Native students (2.92 credits); urban students earned 0.43 credit more than their counterparts in rural hubs, and 2.97 credits more than remote rural students.

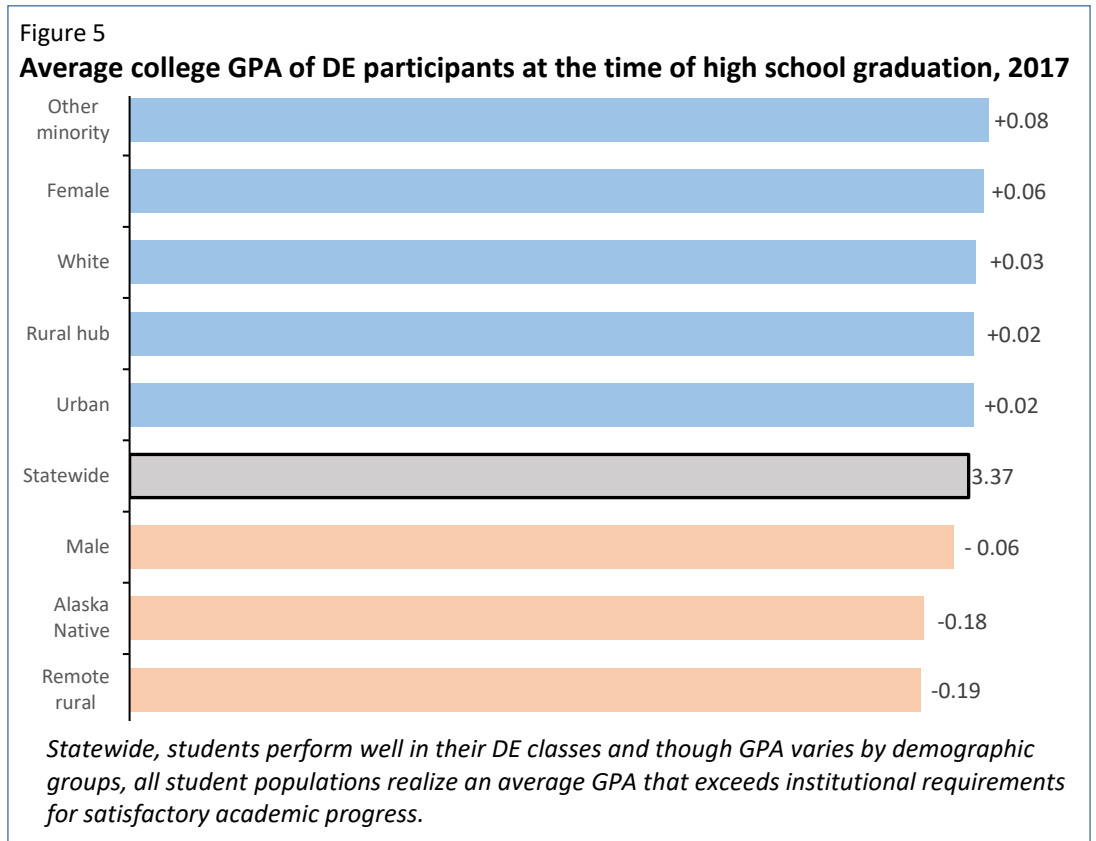
Figure 4
College credit accrual among 2017 graduating DE participants



Statewide, DE participants earn 7.36 college credits by the time of their high school graduation, but the average number of accrued credits varies significantly by demographic group.

How do students perform in DE classes?

Statewide, DE students perform well in their UA courses. Completion rates (passing the course with grades A, B, C, D, P) averaged 93% overall in 2017, and are similar across community type, gender, and racial categories – the lowest average completion rate is 92% for Alaska Native and other minority students, and the highest is 97% for rural hub students. 2017 data reflect a significant performance gap reduction since 2008, when urban students’ completion rate (94%) was 16 percentage points higher than remote rural students’, and White students’ rate (95%) was 9 percentage points higher than Alaska Native students’.



Completion rates do vary by course type; CTE course completion rate in 2017 was 97% statewide, identical to the 2008 rate. Completion rates for STEM and HSS courses were 88 and 93%, respectively, both reflecting a slight increase of 3 percentage points over 2008.

The demographic pattern holds for GPA is well: figure 5 notes that the average college GPA at the time of high school graduation is 3.37. Remote rural students’ average GPA trails the statewide average by .19 points, and males trail by .06. Other minority and female students achieve the highest average college GPAs upon high school graduation, at rates of .08 and .06 points higher than the statewide average, respectively. GPA indicators have been fairly stable across demographic groups since 2011⁷, with the exception of Alaska Native students; though their current average college GPA is still .18 points below the state average, it has increased .29 points since 2011, when it was 2.89.

Alaska homeschool students in DE

About 6.5% of DE participants in the last 10 years were Alaska homeschool students. These students are mostly White (81%); only 6% and 13% identify as Alaska Native or other minority, respectively. Alaska homeschool students are more likely to take courses aligned with a 4-year degree program: 42% of their enrollments are in STEM, 29% in HSS, 22% in CTE, and 7% in other courses. Their performance in DE courses mirrors other students in the state; their completion rate of 94% is almost identical to the statewide rate of 93%, and their average DE GPA at graduation (3.18) is .19 points lower than the statewide average. Though their performance is similar to other students, the intensity of Alaska homeschool DE participation is nearly double the statewide rate: upon graduation, Alaska homeschool DE participants accrue an average of 12.39 credits, 5.03 credits more than the statewide average.

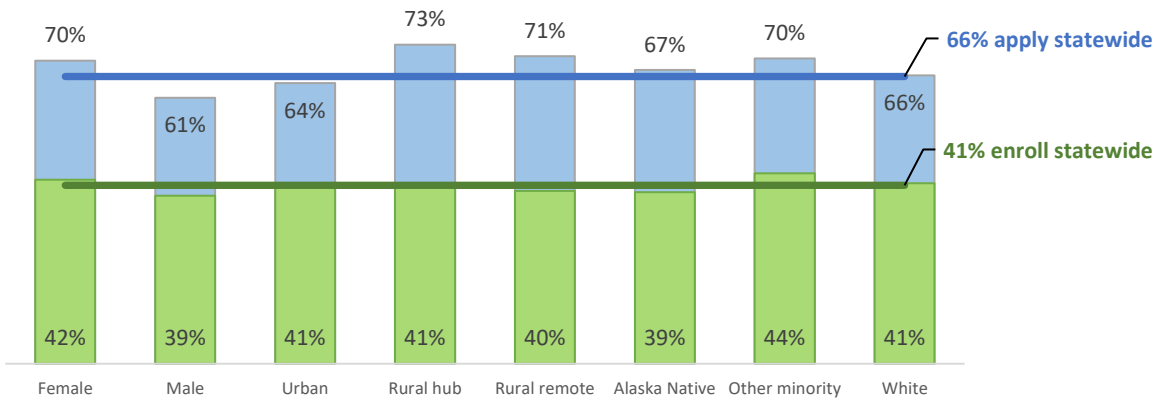
Sixty-nine percent of Alaska homeschool DE participants apply to UA upon completing high school, and 41% ultimately attend; these numbers are similar to statewide rates. Alaska homeschool students who attend UA realize higher first semester success outcomes than any other demographic group in our analysis. Their first semester completion rate is 86% (8 percentage points higher than the statewide average of 78%), and their average first semester GPA is 3.23 (.31 points higher than the state average of 2.92). However, Alaska homeschool DE participants are retained into the second semester at a rate of 68%, 5 percentage points lower than the statewide average.

How many DE students attend a UA college after they graduate high school?

Sixty-six percent of UA's DE participants apply to a UA campus within one year of their high school graduation year, and 41% ultimately enroll in that same timeframe. Though application rates differ slightly and favor women and students from rural and remote rural high schools, the rates at which these groups ultimately attend a UA college

Figure 6

Proportion of graduating DE participants who apply to and attend UA by demographic group



Statewide, 66% of DE participants apply to UA within one year of their high school graduation, and 41% ultimately attend.

differ very little. Figure 6 shows college application and attendance rates across demographic groups.

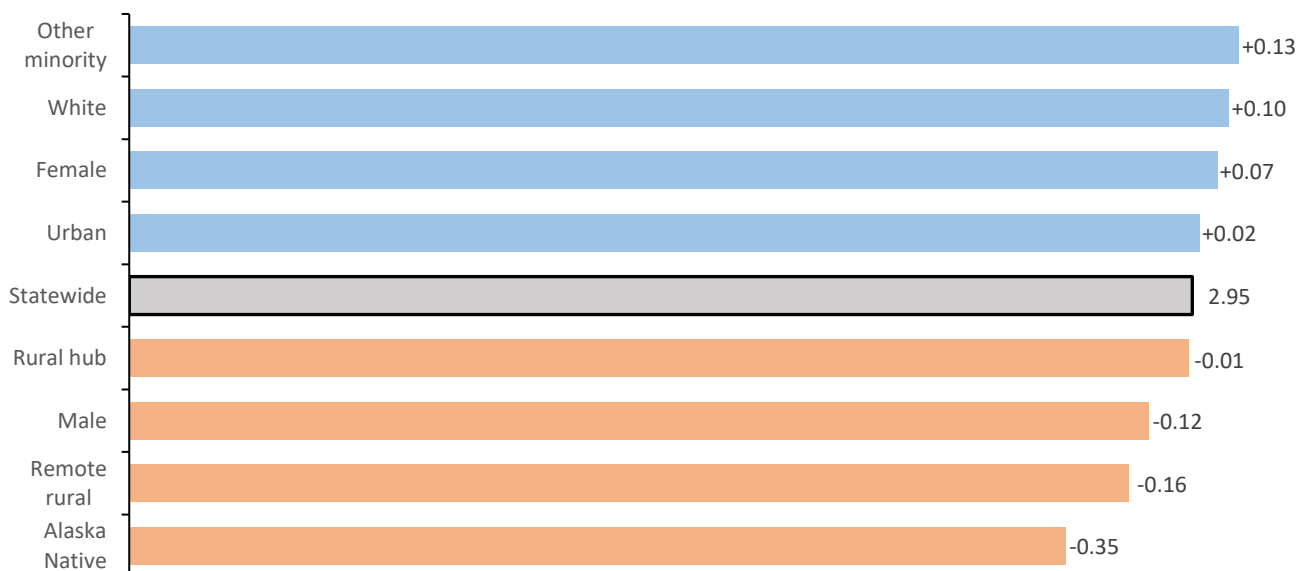
The 41% students who ultimately attend UA generally reflect the statewide DE participant population. The average DE completion rate at graduation for the most recent cohort (2016 graduates) was 96% (similar to the statewide average of 94%), and average college GPA at graduation was 3.50 (.13 points higher than the state average). Although fewer than half of DE students attend UA within a year of high school graduation, those who do are generally high-performing, indicating that Alaska is able to retain academically strong students at UA institutions.

How do DE students perform when they matriculate at UA?

Although different demographic groups attend colleges in the UA system at relatively the same rate, their performance differs once they start classes. Students who are rural, male, or Alaska Native have lower first and second semester GPAs, first and second semester completion rates, and retention rates⁸ (see figures 7, 8, and 9).

Figure 7

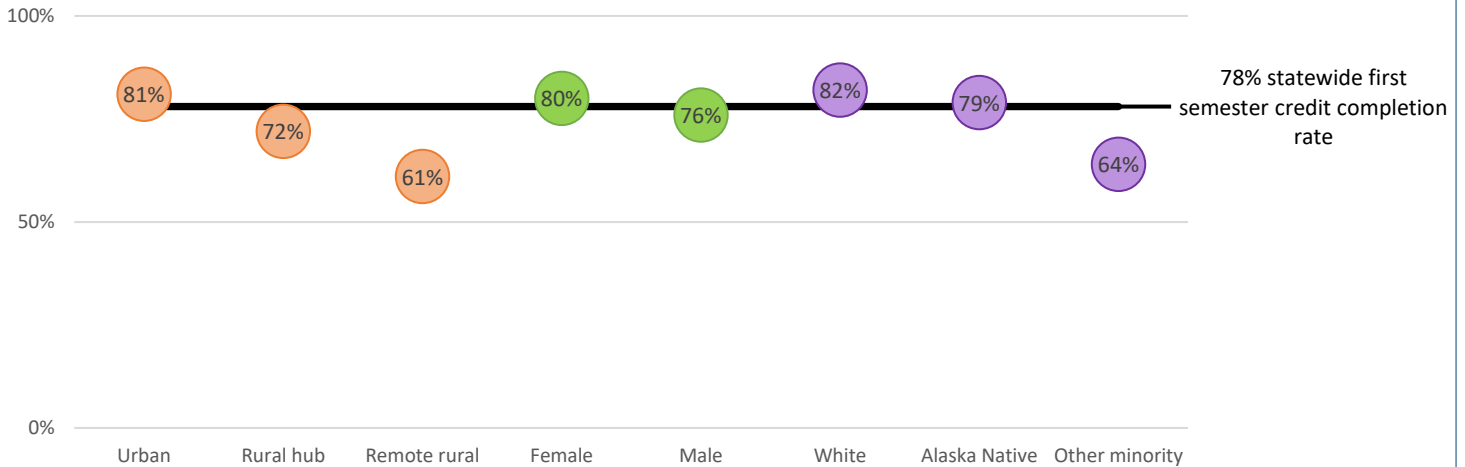
Average first semester UA GPA by demographic group, 2016 graduating class



Performance gaps in GPA are more magnified when students matriculate to a UA institution than they are in high school DE classes.

Figure 8

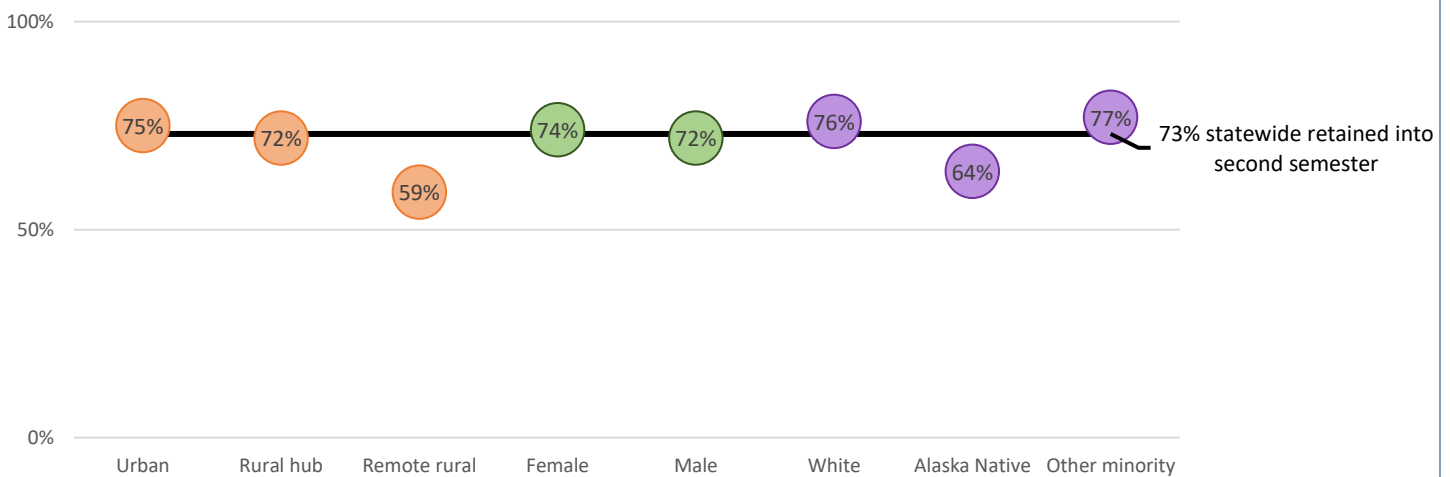
Average UA first semester credit completion rates for matriculated DE participants, 2016 graduating class



Urban, female, and White students are retained and achieve higher first semester credit completion rates than the statewide average. Though completion rates in DE courses were fairly aligned across demographic groups statewide, performance gaps are evident for remote rural and Alaska Native students once they enroll at UA institutions.

Figure 9

Average UA first-to-second semester retention rates for matriculated DE participants, 2016 graduating class



Urban, female, and White students are retained and achieve higher second semester retention rates than the statewide average. These differences align with performance gaps observed at colleges nationally and within the UA system.

Implications for policy, practice, and research

While Alaska is moving towards equity in its dual enrollment offerings, participation, and outcomes, the state still has a marked performance gap, especially when students matriculate into the UA system as college students. We frame our discussion within the literature and with reference to DE policy in other states.

Equity and representation - Equity and representation are challenges for DE programs in other states (An, 2013). Though Alaska is one of the only states with no DE policy (Shivji & Wilson, 2019), these preliminary data suggest that opportunities are relatively well distributed. Although White and urban students are currently overrepresented, the rate of participation for other demographic groups is growing steadily. This trend is a credit to institution and district-level partnerships. In the absence of a statewide policy that gives incentive, motivation, and resources to promote DE programs, this trend in Alaska reflects broad and laudable institutional commitment at the secondary and postsecondary level (Zinth, 2016). However, if DE is a state priority, resources to support its execution and to promote increased access are warranted.

Student eligibility - Thirty-seven states have dual enrollment eligibility policies to include attributes such as GPA, test scores, age, or secondary grade level (Taylor et al., 2015). Because Alaska does not have statewide policy around DE, eligibility requirements are determined at the local level – by school districts and postsecondary institutions.⁹ Our analysis did not look at secondary academic variables, nor does it consider how eligibility policies may differ across districts or programs. Although our analysis is challenged by selection bias, under current practices, most Alaska DE students perform well under locally negotiated policies. This performance does not suggest needed tightening of eligibility requirements; if anything, with needed student support infrastructure (such as academic advising or tutoring), our data suggest they could be broadened.

Career and Technical Education (CTE) – Forty-four states allow CTE courses as DE content (Zinth, 2016). Our analysis found that CTE comprises the majority of DE offerings in rural Alaska, and about a third in urban Alaska; statewide, students realize high success rates in their CTE DE courses. As CTE programs are integral to Alaska’s workforce development plans and economic development needs¹⁰, DE programs and policy should encourage CTE pathways as well as those more traditionally associated with 4-year degrees.

Postsecondary transitions – The largest gaps in student performance are demonstrated as students matriculate into UA. The performance gap for rural and Alaska Native DE participants mirrors other postsecondary transition data, suggesting that colleges have an opportunity to better support these populations of students as they enter postsecondary institutions. The gap between high school DE and first semester college performance also suggests an opportunity to assess DE courses delivered across Alaska for the purpose of ensuring commensurate rigor.

Reporting – In the lower 48, 30 states require DE reporting, but only 16 require reporting of student outcomes (Taylor et al., 2015). If policies are developed in Alaska, coordinated reporting requirements should consider institution and district needs, and ensure data are available to effectively evaluate program outcomes. Our analysis was limited to available data, and we acknowledge the need for follow-up studies to further inform policy directions.

Conclusion

Our descriptive analysis offers preliminary insight to the scope and magnitude of UA’s DE activities, student participation, and student outcomes. It identifies areas of opportunity, but it also documents a positive trend in locally-negotiated activities. These data are good conversation starters, but do not illuminate all of the relevant variables or outcomes necessary for sound and informed policymaking, nor do they reflect the wide variety of stakeholder perceptions. As other states have advanced policy in these areas, Alaska has the opportunity to learn from those initiatives and the literature, and to consider those approaches within the unique Alaska context. Ultimately, we encourage policy that builds on existing positive trends, and interrupts noted inequities.

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Additional variables to be addressed in future research

Our focused analysis offers a snapshot of DE activities but is not exhaustive. Student and course variables, program features, and outcomes warranting further analyses include:

Student-level variables

- Secondary academic performance
- Socioeconomic status
- First-generation student status

Course-level variables

- Course delivery location (such as online, at the high school or on the secondary campus)
- DE program type
- Instructor qualifications

Program features

- Provisions for developmental education
- Credit transferability
- Funding
- Local policies

Student outcomes

- Secondary graduation and success outcomes
- Application of DE credits to degree requirements
- Time to degree completion
- Debt upon graduation
- Postsecondary access for students who are first generation or academically marginal
- Retention of local talent in Alaska through workforce participation

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¹ Analysis completed with permission from the University of Alaska Statewide Office of Institutional Research (OIR)

² This method was developed in response to a 2015 report from UA Statewide's OIR (*Concurrent Enrollment: University of Alaska*) which noted that prior to 2015, many dual enrollment records lacked high school graduation dates. It is important to note that our method excludes high school students who were 18 or older when they took a dual credit class, if their high school graduation date was not recorded in the institutional data system. Our method also differs from operational definitions used by statewide OIR, and numbers in this document do not reflect official University of Alaska headcounts. (To view official reports, see Table 1.13c *Dual Enrollment Headcount by Academic Organization (AO)* and Table 1.20c *Dual Enrollment Student Credit Hours by Academic Organization (AO)* from: <https://www.alaska.edu/files/ir/reporting/1-UA-Enrollment-2018-11-01.pdf>).

³ Declines in enrollments after 2012 may be attributable to two factors. In August of 2011, reporting of Tech Prep dual enrollments were no longer required by Carl Perkins, and this change in reporting requirements may have shifted program activities. Additionally, the University of Alaska Anchorage (UAA), a large producer of DE enrollments, changed its CTE DE policies.

⁴ Community type codes are derived from the Regional Education Lab (REL) Northwest community classification system.

⁵ Though courses were originally organized into Pathways as described by https://www.alaska.edu/research/wp/CTE/Articulation-Agreement-Inventory_Final-report.pdf, for the purposes of this analysis they were collapsed into four categories.

⁶ Race categories are self-reported and were grouped into three categories for this analysis: White, Alaska Native (which includes Alaska Natives who identify as two or more races), and other minority (which includes African American, American Indian, Asian, Hispanic two or more races, Native Hawaiian/Pacific Islander; and Non-Hispanic two or more races). Statewide distributions were derived from: <https://education.alaska.gov/stats/GradRatesSub/2017GradRatesSubgroup.pdf>

⁷ Performance at high school graduation is calculated in 2011 to capture the four years of high school coursework and activities captured in our dataset that started in 2008.

⁸ For retention, we calculated the proportion of all students who enrolled in two consecutive semesters (excluding summer). This differs from traditional IPEDS retention calculations that use a first-time, full-time fall student cohort. Our analysis considered retention regardless of the semester of first enrollment, and regardless of the number of credits students took.

⁹ UA dual enrollment policy and regulations are available here: <https://www.alaska.edu/bor/policy/10-05.pdf>

¹⁰ See *Alaska Career and Technical Education Plan*. (2018). Retrieved from: <http://www.alaskacteplan.com/>