

A Brief Research Summary on Access to College Level Coursework for High School Students

Provided to the Oregon Education Investment Board

August 2014

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The level of an individual's educational attainment directly impacts lifelong earning potential and prosperity. Oregon's 40-40-20 goal, our state's [College and Career Readiness Definition](#) and OEIB's focus on a seamless system of education are driving continued efforts that help more Oregon students transition successfully from high school to post-secondary options. Results from local, state, regional, and national research overwhelmingly support a variety of benefits resulting from increased access to college level coursework for high school students that include:

- Improved students' high school graduation and completion;
- Reduced need for remedial education in the first year of college;
- Improved postsecondary articulation, success, and persistence, particularly for first-generation college students;
- Improved attitudinal, behavioral traits, and socialization skills conducive to college success;
- A more realistic understanding of college expectations for students and their families;
- Confidence in one's ability to do college level coursework;
- Reduced students' time to college graduation;
- Opportunity to explore various careers and majors before enrolling in college full-time;
- Reduced postsecondary costs and debt for students and their families;
- Increased probability of earned postsecondary degrees for lower-income participants and first-generation students;
- Reduced need for remedial or developmental coursework after high school; and
- Support for a college-going culture within K-12 schools.

At the request of the Oregon Education Investment Board, this brief summary of related research is provided to consider what known benefits exist for options that can include Dual Credit, Dual Enrollment, Advanced Placement, International Baccalaureate, and Early College. A glossary of helpful terms is provided in Appendix A.

Dual Enrollment

Data analyzed by the Education Commission of the States (ECS) and others suggest that dually enrolled students share the following characteristics:

- More likely to meet college-readiness benchmarks¹

¹ South Dakota Board of Regents, *Postsecondary Outcomes of Dual Enrollment Students*, October 2013.

- More likely to enter college, and enter shortly after high school graduation²
- Lower likelihood of placement into remedial English or math³
- Higher first-year grade point average (GPA)⁴
- Higher second-year retention rates⁵
- Higher four- and six-year college completion rates⁶
- Shorter average time to bachelor's degree completion for those completing in six years or less.⁷

Research analyses conducted by ECS also show that dual enrollment can greatly benefit students in rural areas, which report lower college-going and postsecondary attainment rates than other locales⁸.

The impact of dual enrollment on college degree attainment for low socio-economic students has been confirmed by a number of studies. A 2013 study using the National Educational Longitudinal Study showed that students who earned six credits (i.e., two courses) and students who earned seven or more credits were significantly more likely to attain any college degree or a bachelor's degree than comparison students⁹.

One pivotal study conducted by Rodríguez, Hughes, & Belfield¹⁰ (2012) involved 3,000 underrepresented minority students (60% students of color, 40% living in non-English speaking households, and nearly 33% first in their families to attend college) who were participating in

² Joni L. Swanson, *Dual Enrollment Course Participation and Effects Upon Student Persistence in College*, 2008; Tom North and Jonathan Jacobs, *Oregon University System Office of Institutional Research, Dual Credit in Oregon 2010 Follow-up: An Analysis of Students Taking Dual Credit in High School in 2007-08 with Subsequent Performance in College*, September 2010; Melinda Mechur Karp, Juan Carlos Calcagno, Katherine L. Hughes, Dong Wook Jeong, Thomas R. Bailey, Community College Research Center, Teachers College, Columbia University, *The Postsecondary Achievement of Participants in Dual Enrollment: An Analysis of Student Outcomes in Two States*, October 2007.

³ South Dakota Board of Regents, p. 5; Colorado Department of Education and Colorado Department of Higher Education, *Annual Report on Concurrent Enrollment, 2012-2013 School Year*, March 27, 2014, p. 24

⁴ Colorado Department of Education and Colorado Department of Higher Education, *Annual Report on Concurrent Enrollment, 2012-2013 School Year*, March 27, 2014; North and Jacobs, p. 7; Karp et al, p. 30.

⁵ South Dakota Board of Regents, p. 5; Swanson, p. 20; North and Jacobs, p. 7; Colorado Department of Education and Colorado Department of Higher Education, p. 21; Karp et al, p. 30; Drew Allen and Mina Dadgar, "Does Dual Enrollment Increase Students' Success in College? Evidence from a Quasi-Experimental Analysis of Dual Enrollment in New York City," *New Directions for Higher Education* 158 (Summer 2012): 15.

⁶ South Dakota Board of Regents, p. 5.

⁷ South Dakota Board of Regents, p. 5.

⁸ Zinth, J.D. (2014). Dual Enrollment: A Strategy to improve college completion among rural students. Education Commission of the States. Retrieved from <http://www.ecs.org/clearinghouse/01/12/61/11261.pdf>

⁹ U.S. Department of Education, Institute of Education Sciences, What Works Clearinghouse. (2013, December). WWC review of

the report: The impact of dual enrollment on college degree attainment: Do low-SES students benefit? Retrieved from <http://whatworks.ed.gov>

¹⁰ Rodríguez, O., Hughes, K. L., & Belfield, C. (2012). *Bridging college and careers: Using dual enrollment to enhance career and technical education pathways*. Retrieved from http://www.postsecondaryresearch.org/i/a/document/NCPRBrief_RodriguezHughesBelfield_DualEnrollment.pdf

eight different dual enrollment efforts in California. The researchers report that underrepresented minority students who participated in dual enrollment had higher graduation rates, were less likely to take basic skills courses once they enrolled in college, were more likely to attend, persisted in college once they completed high school, and were more likely to earn more college credits than their peers who did not participate in dual enrollment.

Young, Joyner and Slate (2013)¹¹ found that students who enrolled in dual credit courses while in high school have higher first term GPAs at the community colleges where they later enrolled than do students who did not enroll in dual credit courses.

A quasi-experimental study using national longitudinal data found that first- generation students who participated in dual enrollment were more likely to attain a postsecondary degree (of any kind) and earn a bachelor's degree.¹²

Dual Credit Research in Oregon

In 2008, the OUS Office of Institutional Research, working with the Department of Community Colleges and Workforce Development, undertook a pilot study to evaluate dual credit instruction – courses taught in an Oregon high school, by a high school teacher sanctioned through a college, that carry both high school and college credit. The study found that dual credit instruction does as well as college-situated instruction in readying students for future college work. After the study appeared, the Joint Boards of Education, acting through the Unified Education Enterprise, directed that it be repeated every two years with the aim of establishing a protocol by which to assess the effectiveness of dual credit programs.

In 2010, another study was conducted by Tom North and Jonathan Jacobs to address two questions: (1) Do high school students who take dual credit courses succeed when they go on to college?, and (2) Does dual credit instruction do as well as college- situated instruction in preparing students for subsequent college coursework? The earlier study looked at high school students who took dual credit courses in 2005-06; the subsequent study looked at students who took dual credit courses in 2007-08.

In addition, the study included a statistical sketch of the dual credit program at each participating Oregon college and summary data from community colleges' dual credit programs in career and technical education. The following excerpts from the full report on the studies are instructive. An Executive Summary can be retrieved at

http://www.ode.state.or.us/teachlearn/pte/cte_updatesdualcredit-oregonexecsummary.pdf

¹¹ Young, R., Joyner, S. & Slate, J. (2013) Grade Point Average Differences between Dual and Nondual Credit College Students, *Urban Studies Research* Volume 2013 (2013), Article ID 638417, 6 pages <http://dx.doi.org/10.1155/2013/638417>

¹² An, B. (2012). The impact of dual enrollment on college degree attainment: Do low-SES students benefit? *Educational Evaluation and Policy Analysis*, 35(1), 57–75

Excerpts from the Dual Credit in Oregon 2010 Follow-Up: An Analysis of Students Taking Dual Credit in High School in 2007-08 with Subsequent Performance in College

1. Do high school students who take dual credit courses succeed when they go on to college?

An array of evidence says that dual credit students do succeed:

Dual credit students have a higher college participation rate than high school graduates overall. Of Oregon's dual credit seniors in 2007-08, 81.4% continued to some form of postsecondary education by the following winter, compared to 72.6% of Oregon's high school graduating class of 2005, the last year statewide participation rates were available.

Dual credit students who go on to college continue to the second year at a higher rate than freshmen who enter college without having earned dual credit. Within the cohort of freshmen who entered OUS in fall 2008, 87.0% of those who took dual credit in 2007-08 continued to the second year of college, compared to 79.9% of those who did not. The correlation between dual credit enrollment and freshman persistence exists even after controlling for academic strength and other predictive influences on student advancement.

Among freshmen who continue to the second year of college, dual credit participants earn a higher first- year GPA. For the population of freshmen entering OUS in 2008-09 and returning the following year, those who took high school dual credit in 2007-08 completed the first year of college with an average GPA of 3.13, compared to 2.97 for those who did not take dual credit.

Students who continue to the second year of college accumulate more college credit if they take dual credit in high school. In 2008-09, among freshmen new to OUS who returned the following year, dual credit and non-dual credit students alike completed an average of 44 credits. But dual credit students amassed far more cumulative credit. By the start of the second fall, they had accumulated 61.3 college credits, more by almost a full term's worth than the 49.8 credits accumulated by their classmates who took no dual credit in high school.

2. Does dual credit instruction do as well as college-situated instruction in preparing students for subsequent college coursework?

The short answer to the question is yes.

The study identifies a number of core lower-division sequences – in writing, mathematics, and Spanish – where success in the final course of the sequence can be presumed to depend on knowledge gained in the prerequisite. When dual credit students who take the prerequisite in high school and the final course in college are compared to their college classmates who take the entire sequence in college, it turns out that they pass the final course in proportions that are substantially equivalent to those of their college- prepared classmates. It follows that dual credit high school instruction must have done as good a job as college-situated instruction in

readying students for the final course of the sequence.

However, this assessment needs qualifying. In several of the mathematics sequences, dual credit students earn a lower average grade in the final term even though their pass rates are largely equivalent. But the indications are mixed. There are other mathematics sequences in which dual credit students' average grade in the final term is as high as or higher than their college-prepared classmates', and in writing and Spanish, it is as high or higher more often than not. If, on the basis of these mixed indications, we were to conclude that dual credit mathematics instruction was inadequate, we would also have to conclude that college-situated writing and Spanish instruction was inadequate. Rather than impugning both instructional venues, it is more reasonable to give dual credit instruction a qualified endorsement. Pass rates in the final term affirm its effectiveness, and average grades in the final term yield conflicting results. The preponderance of evidence therefore favors dual credit instruction, but more than one mathematics sequence calls for close scrutiny in any future study.

Advanced Placement

In a 2013 study published by the College Board, Mattern, Marini, & Shaw¹³ found that Advanced Placement Exam participation and performance were both positively related to four-year graduation rates and that regardless of what score was earned on the AP Exam(s), students who took an AP Exam were more likely to graduate in four years or fewer than students who took no AP Exams. Their model-based analyses also showed that AP Exam participation and performance both uniquely contributed to predicting four-year graduation, above and beyond such variables as students' prior academic performance, gender, underrepresented minority status, and first-generation college-going status.

Research on the college benefits of Advanced Placement has not only found that AP students and, particularly, successful AP students are more likely to perform well in college than their non-AP peers; it has also shown that AP students are more likely to simply enroll in a four-year college and university (Chajewski et al., 2011)¹⁴. Based on a national sample of more than 1.5 million students, the odds of enrolling in a four-year institution increased by 171% for students who took one AP Exam compared with students who took no AP Exams. The increase in odds was even higher for students who took more than one AP Exam.

International Baccalaureate

¹³ Mattern, K., Marini, J. & Shaw, E. (2013) Are AP Students More Likely to Graduate from College on Time? Retrieved from <http://research.collegeboard.org/sites/default/files/publications/2014/1/research-report-2013-5-are-ap-students-more-likely-graduate-college.pdf>

¹⁴ Chajewski, M., Mattern, K. D., & Shaw, E. J. (2011). Examining the role of Advanced Placement exam participation in four-year college enrollment. *Educational Measurement: Issues and Practice*, 30(4), 16–27.

Using data from the International Baccalaureate (IB) student data system (IBIS) and the National Student Clearinghouse (NSC), the IB Global Research department explored the university enrollment, retention and graduation rates of 9,654 2005 IB diploma graduates in the United States. College graduation rates for students who had earned the IB diploma were consistently higher than institutional university rates. Over 90% enrolled in college and 74% graduated within four years.¹⁵

Early College

Yet another model called Early College offers students who are traditionally underrepresented in postsecondary education the opportunity to pursue a high school diploma while simultaneously earning college credits. Early Colleges partner with colleges and universities to offer students an opportunity to earn an associate's degree or up to two years of college credits toward a bachelor's degree during high school at no cost to the students. To help students succeed in their coursework and the transition to college, Early Colleges provide a variety of supports, including advisories, tutoring, and academic support classes. The American Institutes for Research published a study¹⁶ in 2013 that included 1,294 students (67 percent minority and 53 percent low income) and eight Early College programs. They compared results of students randomly selected and subsequently enrolled in Early College with those randomly selected who did not enroll in an Early College program and found the following:

1. Early College students were significantly more likely to graduate from high school than comparison students.
2. Early College students were significantly more likely to enroll in college than comparison student
3. Early College students were significantly more likely to earn a college degree than comparison students
4. Early College impact on college degree attainment did not differ based on first-generation college-going status, but were stronger for female than male students, stronger for minority than non-minority students, stronger for lower income than higher income students, and stronger for students with higher middle school achievement than lower achieving students.

Appendix A

¹⁵ Halic, O. 2013. *Postsecondary educational attainment of IB Diploma Programme candidates from US high schools*. Geneva, Switzerland. International Baccalaureate Organization.

¹⁶ American Institutes for Research & SRI. (2013). *Early college, early success: Early College High School Initiative impact study*. Washington, DC: American Institutes for Research. Retrieved from <http://www.air.org>

Glossary of Terms Used in the Field

Concurrent Enrollment refers to models providing high school students the opportunity to take college-credit bearing courses taught by college-approved high school teachers. Sometimes called “dual credit,” “dual enrollment,” or “college in the high school,” concurrent enrollment partnerships differ from other models of dual enrollment because high school instructors teach the courses. Although concurrent enrollment courses share some elements or characteristics of other programs, concurrent enrollment differs in significant ways from the following:

- Programs in which the high school student travels to the college campus or college faculty travel to the high school
- Programs where students take courses from a college instructor via distance education
- Articulation agreements where a college retroactively assigns credit for high school coursework upon matriculation
- Advanced Placement and International Baccalaureate high school courses where standardized tests are used to assess students’ knowledge at the end of a course. The National Alliance for Concurrent Enrollment Partnerships (NACEP) defines **concurrent enrollment** as the opportunity for high school students to take a college class taught by a trained high school teacher in order to simultaneously earn both high school and transcribed college credit, at their high school, during the regular school day. NACEP considers concurrent enrollment to be a subset of dual enrollment opportunities for high school students.

Dual Credit is defined in Oregon as awarding secondary and postsecondary credit for a course offered in a high school during regular school hours, as determined by local school board and community college board policy. Dual Credit courses are designed to help high school students’ progress through postsecondary education by eliminating duplication of course work and/or proficiencies.

Dual enrollment courses can be taught by high school and/or college/university instructors and can occur on the high school campus, the college/university campus, or via distance education.

Early College Unlike traditional dual enrollment programs, early college initiatives are primarily focused on the underprepared student, rather than the high achiever.

Early College High Schools are small autonomous schools operated in close connection with a postsecondary institution. The schools are designed so that students have the opportunity earn an Associate’s degree or up to two years of transferable college credit tuition free along with a high school diploma.