CCRC COMMUNITY COLLEGE RESEARCH CENTER
Teachers College, Columbia University

Advancing in Math Through Dual Enrollment

National Landscape of Dual Enrollment Math

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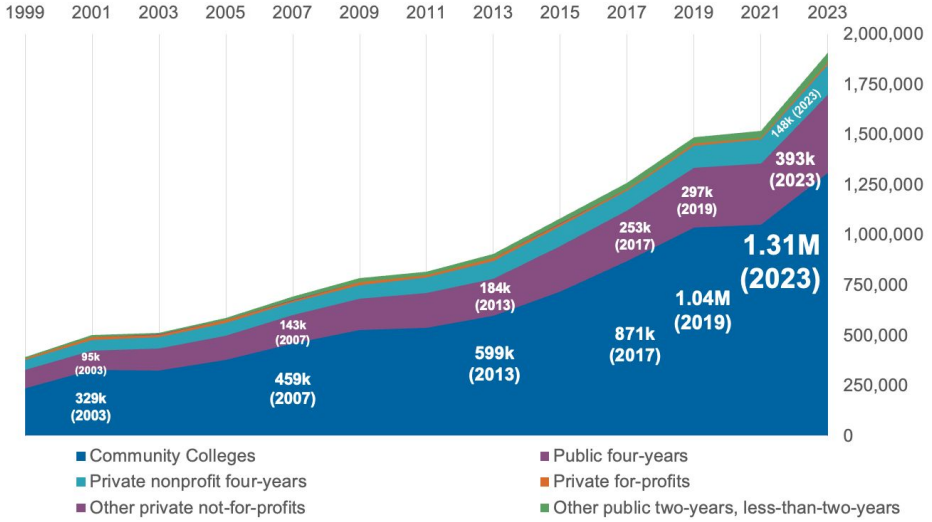
April 15, 2026 | **The Mathematics of Opportunity: Meeting the Moment Conference**


CCRC COMMUNITY COLLEGE RESEARCH CENTER
Teachers College, Columbia University
CCRC has been a leader in the field of community college research and reform for 30 years.
Our work provides a foundation for innovations in policy and practice that help give every community college student the best chance of success.

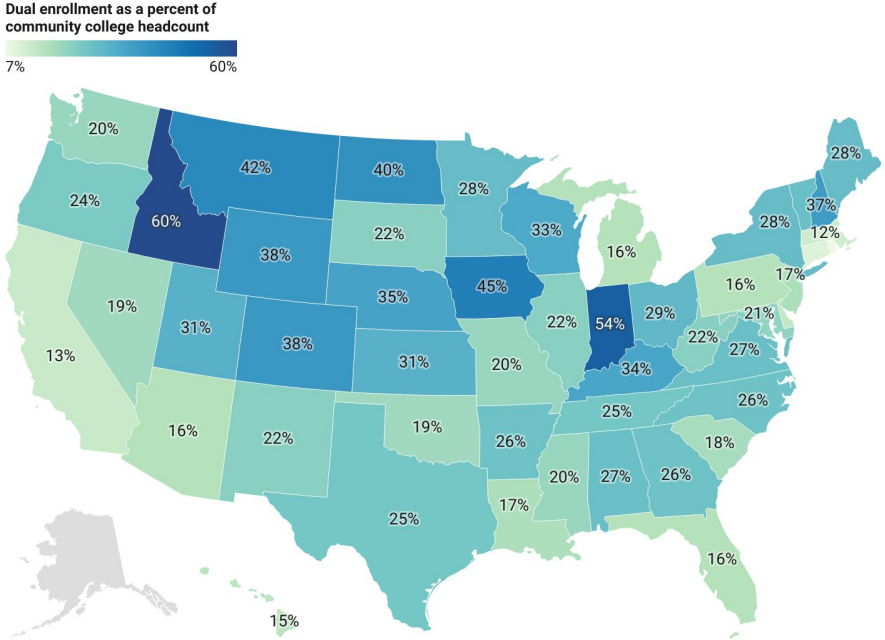
Dual enrollment has doubled in the past decade, up to 2.8M in 2023-2024

Growth of Dual Enrollment, Fall Enrollments 1999-2023



1 in 5 community college students are in high school

Percentage of Community College Students in High School in 2023-24



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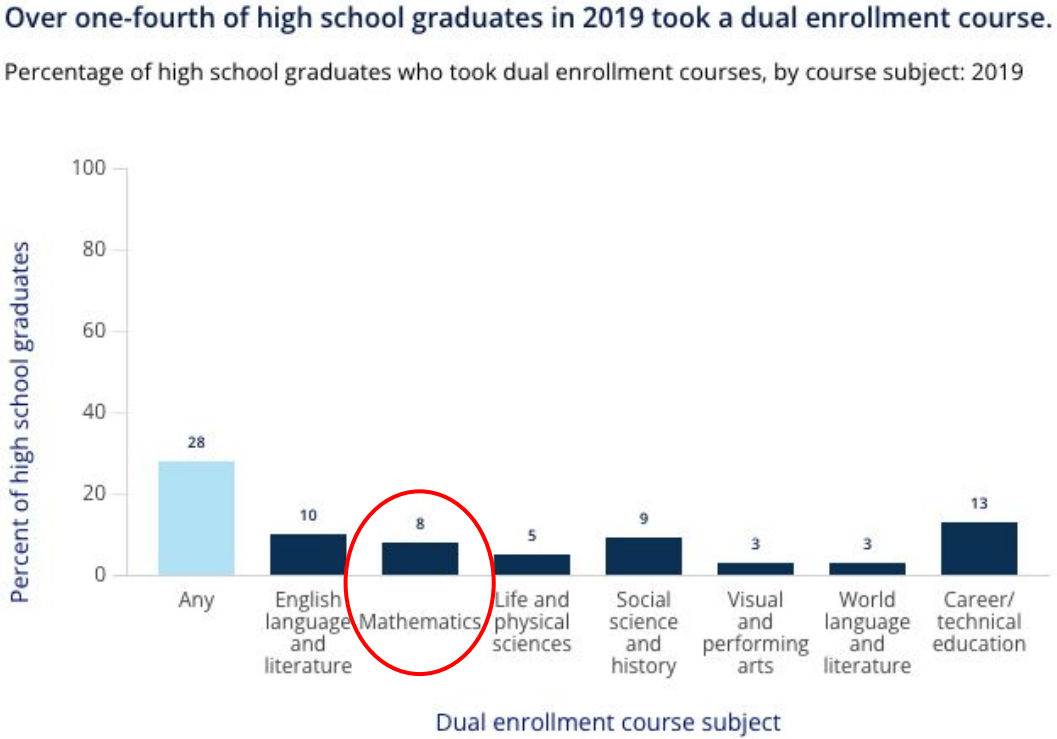
CCRC analysis of IPEDS Data
https://ccrc.tc.columbia.edu/easyblog/high-school-dual-enrollment-grows.html



While 28% of 2019 high school graduates took a dual enrollment course, only 8% took a DE math course.

2019 NAEP High School Transcript Study (HSTS) Results

https://www.nationsreportcard.gov/hstsreport/#closerlook_3_0_el

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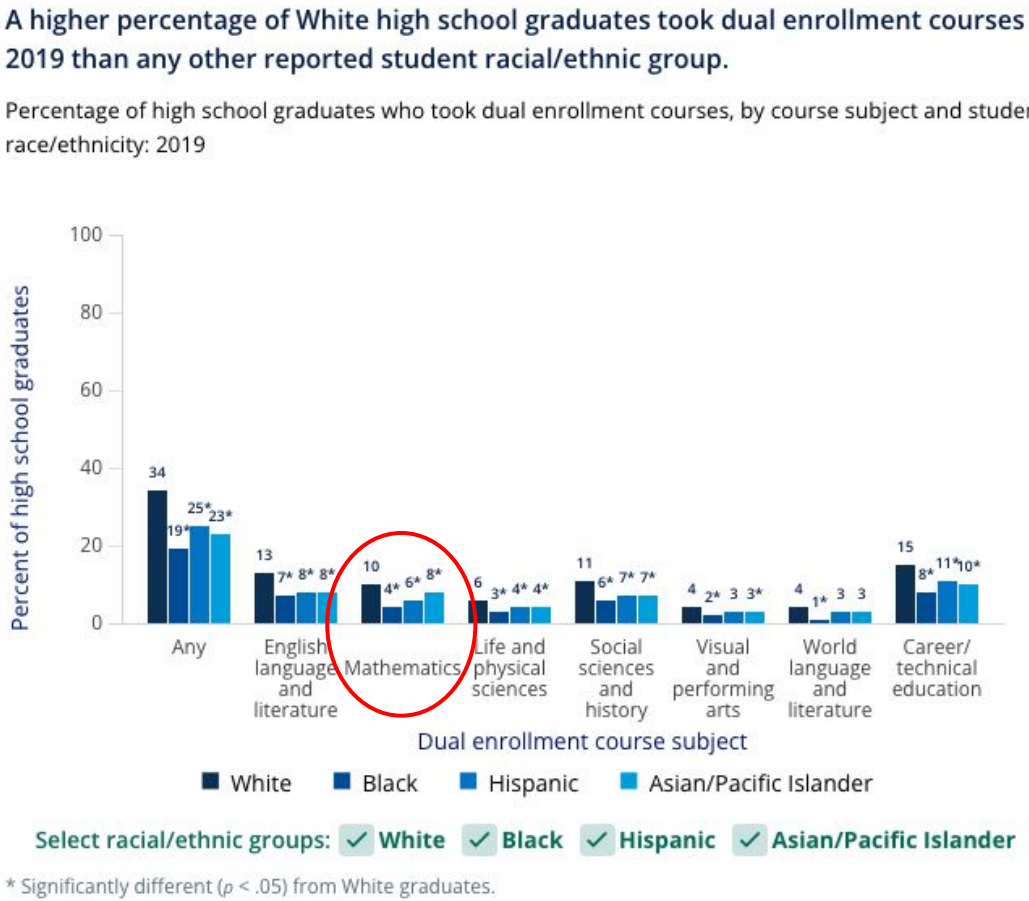

Only 4% of Black students and 6% of Hispanic students participated in DE math nationally.

2019 NAEP High School Transcript Study (HSTS) Results

https://www.nationsreportcard.gov/hstsreport/#closerlook_3_0_el

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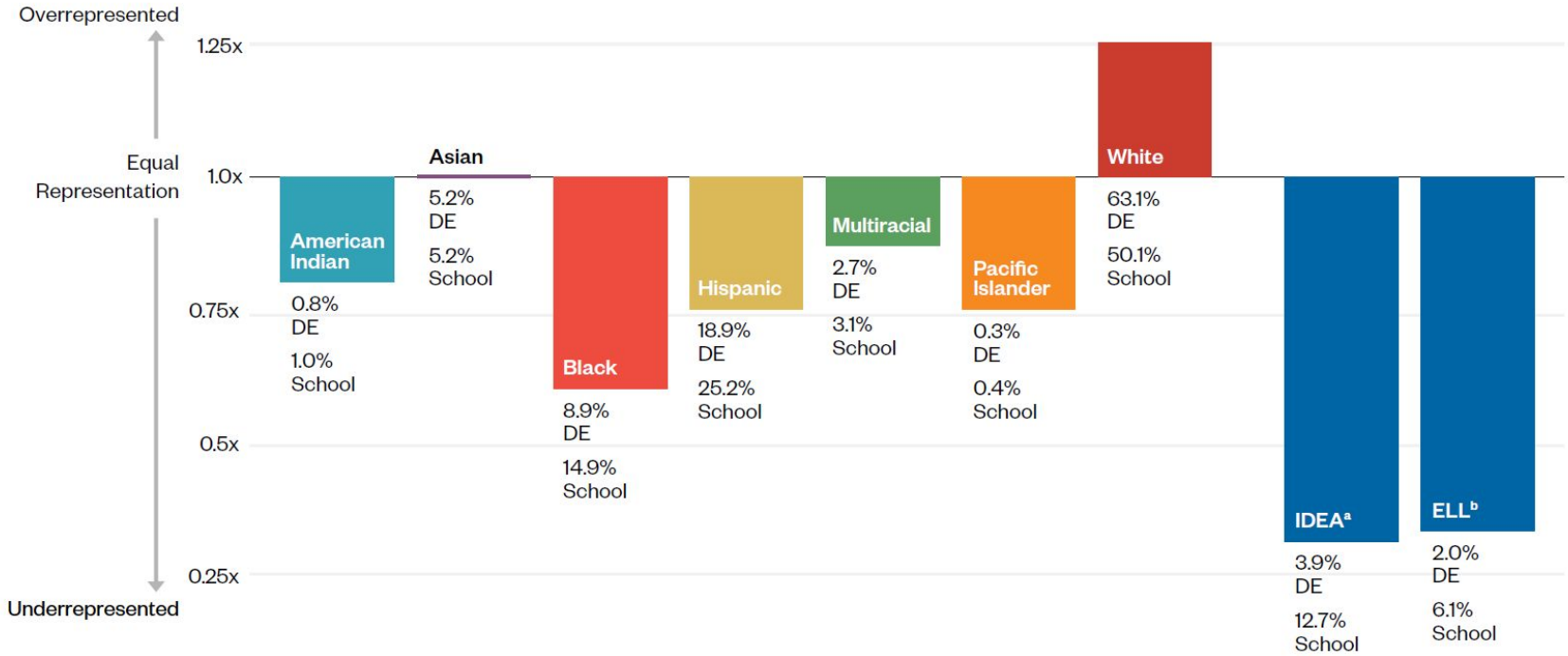
Programs of Privilege:
Access to DE is uneven, gaps are widespread.



https://ccrc.tc.columbia.edu/publications/revamping-dual-enrollment-equitable-college-degree-paths.html

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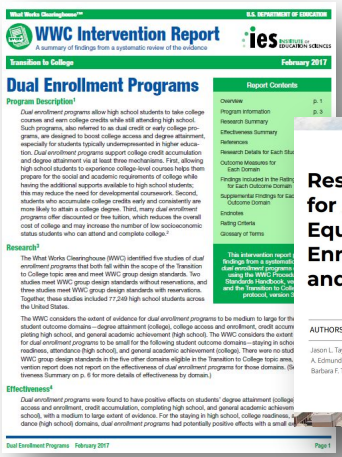
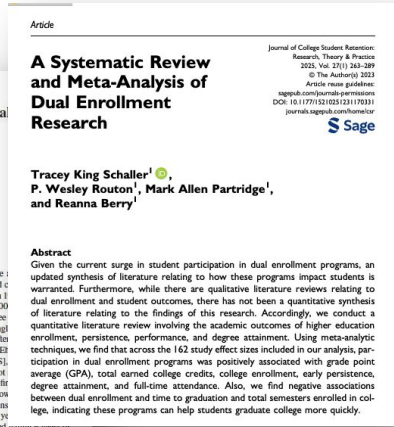
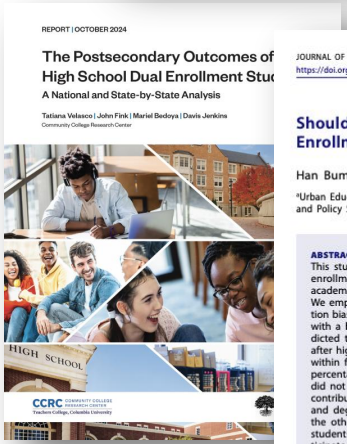
Strong research base showing that DE works as a lever for expanding college access & attainment

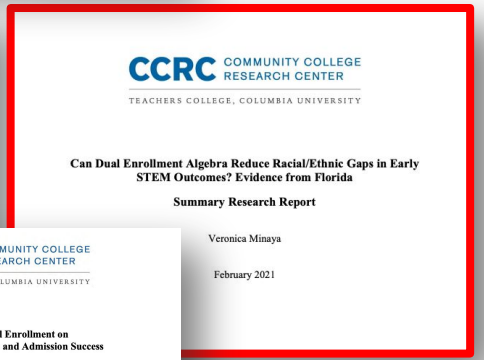
+ DE benefits Black, Latino, low-income and other priority groups

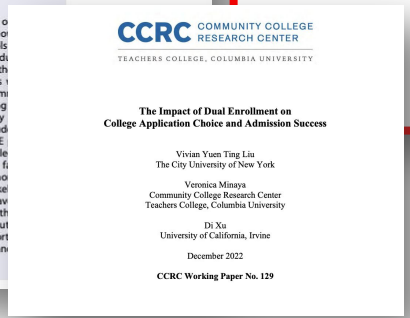
Reviews & Meta-Analyses











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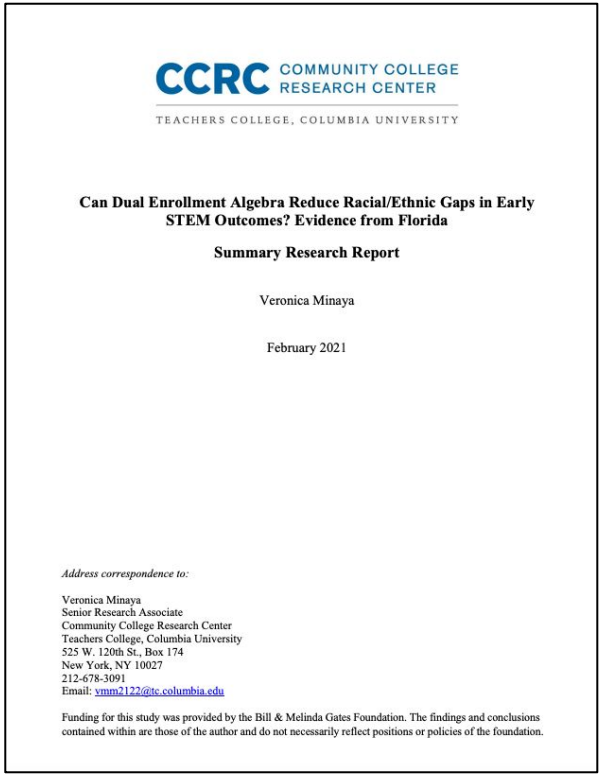
A causal study analyzing the impact of taking a dual enrollment algebra course among Florida high school students found:

1. While taking the course did not impact general college enrollment, it significantly **increased the likelihood of a student choosing and persisting in a STEM major** at college entry.
2. This boost in STEM enrollment was entirely driven by **Black and Hispanic high school students, who were 20 percentage points more likely to enroll in STEM fields** in their first year of college.

(Minaya, 2021)



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Can Dual Enrollment Algebra Reduce Racial/Ethnic Gaps in Early STEM Outcomes? Evidence from Florida

Summary Research Report

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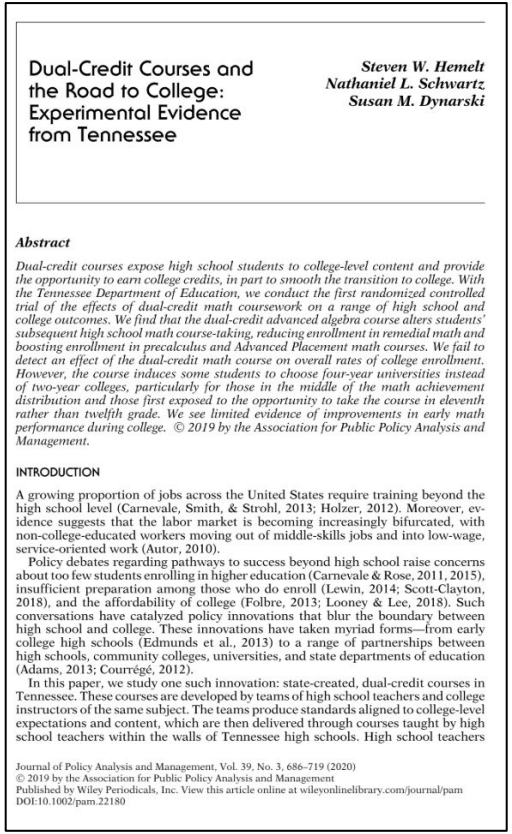
A randomized controlled trial of dual-credit Advanced Algebra and Trigonometry course in Tennessee found:

1. The course altered students' course-taking trajectories, **shifting them away from remedial math and toward more challenging math classes**, such as AP math courses and precalculus.
2. Taking the dual-credit course **tilted college choices** away from two-year colleges and toward four-year universities, a shift that was clearest for middle-achieving students

(Hemelt, Schwartz, & Dynarski, 2020)



Dual-Credit Courses and the Road to College: Experimental Evidence from Tennessee

Steven W. Hemelt
Nathaniel L. Schwartz
Susan M. Dynarski

Abstract

Dual-credit courses expose high school students to college-level content and provide the opportunity to earn college credits, in part to smooth the transition to college. With the Tennessee Department of Education, we conduct the first randomized controlled trial of the effects of dual-credit math coursework on a range of high school and college outcomes. We find that the dual-credit advanced algebra course alters students' subsequent high school math course-taking, reducing enrollment in remedial math and boosting enrollment in precalculus and Advanced Placement math courses. We fail to detect an effect of the dual-credit math course on overall rates of college enrollment. However, the course induces some students to choose four-year universities instead of two-year colleges, particularly for those in the middle of the math achievement distribution and those first exposed to the opportunity to take the course in eleventh rather than twelfth grade. We see limited evidence of improvements in early math performance during college. © *2019 by the Association for Public Policy Analysis and Management.*

INTRODUCTION

A growing proportion of jobs across the United States require training beyond the high school level (Carnevale, Smith, & Strohl, 2013; Holzer, 2012). Moreover, evidence suggests that the labor market is becoming increasingly bifurcated, with non-college-educated workers moving out of middle-skills jobs and into low-wage, service-oriented work (Autor, 2010).

Policy debates regarding pathways to success beyond high school raise concerns about too few students enrolling in higher education (Carnevale & Rose, 2011, 2015), insufficient preparation among those who do enroll (Lewin, 2014; Scott-Clayton, 2018), and the affordability of college (Folbre, 2013; Looney & Lee, 2018). Such conversations have catalyzed policy innovations that blur the boundary between high school and college. These innovations have taken myriad forms—from early college high schools (Edmunds et al., 2013) to a range of partnerships between high schools, community colleges, universities, and state departments of education (Adams, 2013; Courrégé, 2012).

In this paper, we study one such innovation: state-created, dual-credit courses in Tennessee. These courses are developed by teams of high school teachers and college instructors of the same subject. The teams produce standards aligned to college-level expectations and content, which are then delivered through courses taught by high school teachers within the walls of Tennessee high schools. High school teachers

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DOI:10.1002/pam.22180

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A quasi-experimental study of dual-credit coursework among public high school students in Texas found:

1. **Mathematics appears to be the most influential dual-credit subject in terms of promoting baccalaureate attainment**, significantly outpacing the benefits of DE courses in subjects like English, social sciences, and science.

2. Completing a dual-credit math course was an especially strong predictor of long-term postsecondary success, **increasing a student's odds of attaining a bachelor's degree within six years by between 60% and 90%.**

(Giani, Alexander, & Reyes, 2014)

Exploring Variation in the Impact of Dual-Credit Coursework on Postsecondary Outcomes: A Quasi-Experimental Analysis of Texas Students

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Despite the growing popularity of dual-credit courses as a college readiness strategy, numerous reviews of the literature have noted a number of important limitations of the research on the effects of dual-credit on student postsecondary outcomes. This study addressed these gaps in the literature by estimating the impact of dual-credit courses on postsecondary access, first-to-second year persistence, and eventual college attainment, and overcame many of the methodological limitations of previous studies. The study utilized a statewide longitudinal data system (SLDS), allowing us to track an entire cohort of students through their transition into postsecondary statewide. Propensity score matching was used in order to reduce the self-selection bias associated with high achieving students being more likely to take dual-credit courses. We explored how the number of dual-credit courses students complete and the subject of the courses influences their impact. We also compared the effects of dual-credit to alternative advanced courses. Our results suggest that dual-credit is a promising strategy for increasing the likelihood of students accessing, persisting through, and completing a degree in postsecondary, and is possibly even more impactful than advanced coursework. However, significant variation in the benefit of dual-credit exists.

Dual-credit courses, in which secondary students can earn high school and college credit simultaneously for the same course, have recently become one of the most popular reform strategies for bridging the gap between high school and college (Hoffman, Vargas, & Santos, 2008, 2009). Also known as dual-enrollment or concurrent enrollment, dual-credit courses have existed for decades (Andrews & Marshall,

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Implications & Further Considerations

- Access to DE
- Course Quality and Support
- Math Pathways Aligned with Career Pathways
- Intentional Advising
- Teacher Credentialing
- Hidden Costs

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Resources on dual enrollment equity pathways for K-12 and college practitioners.

CCRC's DE Resources

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